

EXPLORING DIMENSIONS OF NATURE IN HOSPICE DESIGN

A Thesis

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Master of Science

by

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ABSTRACT

While there is a growing body of literature regarding design guidelines for the provision of nature in hospice residences, there has been little empirical inquiry pertaining to this specific topic. This thesis explores features providing access to nature to residents, visitors, and staff members in hospice residences, in hopes of contributing to the field of evidence-based design in hospice settings. Data was collected through conducting semi-structured interviews with staff and volunteers at a hospice residence in Ithaca, NY to corroborate current nature-related design recommendations for hospice facilities. The results of these interviews, in conjunction with the findings of a literature review, were used to generate a survey aimed at assessing the importance of specific features facilitating access to nature, the differences in importance between various user groups (patient, staff, and visitors), the effectiveness of existing hospice facilities in providing these design features, and the effects of setting (rural, suburban, or urban) on the effectiveness of hospice facilities providing access to nature. The nine interviews conducted supported existing design recommendations and assisted in identifying particularly important topics to be addressed in the survey. The findings of the survey, which was distributed to hospice staff via a national hospice listserv, included the identification of window views, daylight, and fresh air as the three most important features for all user groups. This study concludes by discussing design recommendations generated from the findings as well as limitations and future directions.

Keywords: hospice design, evidence-based design, nature, biophilia

BIOGRAPHICAL SKETCH

Andrea Fronsman was born and raised in Bloomsburg, PA. She earned her Bachelor of Arts degree in psychology from Bard College, where she completed her senior thesis on the use of yoga as an adjunctive treatment for post-traumatic stress disorder. She attended Cornell University's Department of Design and Environmental Analysis for her master's degree, where she had the opportunity to combine her love of design and the social sciences through her studies of Human-Environment Relations. Her current research interests include environmental psychology and design, specifically applied to the area of healthcare. She has coauthored papers on the design of mental and behavioral health facilities in the *Journal of Environmental Psychology* and *General Hospital Psychiatry*.

Dedicated to Jill.

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Introduction

The purpose of the proposed study is to identify which commonly recommended design features incorporating nature into the built environment best support stress relief for residents receiving end-of-life care in residential hospice environments as well as for the families of these residents and staff members. The findings of this study will be helpful in guiding further research and generating design guidelines for future hospice residences.

The following literature review is comprised of theories underlying research examining the provision of nature in healthcare environments, an examination of design guidelines suggesting that natural features be implemented in hospice environments, and reviews of prior studies investigating the implementation of natural features in other types of healthcare facilities, in lieu of empirical studies specifically in hospice settings.

Literature Review

At end-of-life when curative treatments are no longer helpful, the priority of care shifts toward promoting quality of life (Zhang, Nillson, & Prigerson, 2012). Increasing the quality of palliative care has become particularly salient as the aging population is rapidly increasing (Brereton et al., 2011) and “too many” people die suffering from distress that can be alleviated (Stepp, 1998). The mitigation of psychological distress in particular is a key factor in the improvement of quality of life in hospice facilities. The stress encountered in these facilities is not limited to residents, however, as both family members and staff are naturally exposed to high levels of stress in end-of-life care as well (Gage et al., 2014). Due to these factors, the

role of hospice residences will continue to expand, therefore making research on providing quality design in hospice facilities a crucial area.

Theoretical Underpinnings

The basis for incorporating nature in hospice facilities and, more generally, healthcare facilities is rooted in human-environment theories considering supposed evolutionary desires to connect to nature, fulfill basic informational needs, and even nature's role as a positive distraction.

“Total Pain” and Quality of Life at End of Life. Dame Cicely Saunders, founder of the modern hospice movement, introduced the concept of “total pain,” an all-encompassing physical, emotional, spiritual, and social malaise afflicting those diagnosed with life-threatening illnesses (Richmond, 2005). “Quality of life” at end-of-life has come to be defined as a five-pronged concept comprised of physical, emotional, social, developmental, and material factors (Felce & Perry, 1995). While quality of life is largely subjective, practices such as avoiding hospitalization and lowering stress have been associated with higher quality of life (Zhang, Nillson, & Prigerson, 2012).

Supportive Healthcare Design. One way to improve quality of life in hospice patients is through optimizing the built environment to support stress relief (Brereton et al., 2011). Ulrich's (1991) Theory of Supportive Healthcare Design suggests that promoting psychological wellness in healthcare settings can be achieved through architecture that fosters stress reduction. Conversely, Ulrich's theory states that psychologically unsupportive environments “work against” wellness and can intensify

feelings of anxiety and depression. Fostering access to positive distraction is one of the three proposed tenets of “supportive design.”

Ulrich conceptualizes nature as a particularly effective form of positive distraction, with evidence supporting its ability to reduce stress (Ulrich, 1991). Ulrich (1984) proposes that because “most natural views apparently elicit positive feelings, reduce fear in stressed subjects, and hold interest,” natural views should foster restoration from stress and anxiety as well. Qualitative research has supported this notion that access to nature is one major factor influencing quality of life in advanced cancer patients (Rowlands & Noble, 2008).

Biophilia Hypothesis. The “Biophilia Hypothesis,” first described by Wilson (1984), is the theory that humans have an “innate tendency to focus on life and lifelike processes.” This underscores many efforts to provide nature through design, especially to vulnerable populations who may benefit the most from the stress-reduction nature has been shown to provide.

Functionalist Evolutionary Theory. Kaplan & Kaplan’s 1978 “functionalist-evolutionary theory,” claims that humans possess a biological predisposition to desire visual access to their surroundings. This acts as a potential explanation for the observed benefits of nature exposure, which will be covered in later sections (Verderber, 1986).

Prospect and Refuge Theory. Prospect and Refuge Theory, a paradigm interrelated with the previously described theories, was proposed by Appleton (1996), as another potential explanation for the human affinity for natural settings. Appleton theorized that one has a preference for nature scenes that provide a good vantage point

(prospect) while providing a feeling of security (refuge). Like the other basic theories underlying this research, the underlying logic pertains to the survival instinct; with high levels of prospect and refuge, one can avoid potential threats (Appleton, 1996).

Prior Nature Studies in Healthcare Settings

Although there is a wealth of literature exploring the stress-reducing capacities of nature in hospital environments, there are few studies addressing the incorporation of nature into hospice environments specifically. However, studies on the integration of natural elements into other medical environments do provide valuable insights into features to be examined and methodologies through which data on these features can be collected.

AIDS Facilities. Studies conducted on a related building typology, facilities for persons with AIDS, have also established the importance of offering features that connect users to the outdoors. Features such as greenhouses, solaria, and patios were found to be used quite often in a post occupancy evaluation of the Bailey-Boushay House (Shepley, 1999). The study of facilities for persons with HIV/AIDS diagnoses is relevant, as these services at the time of these publications often incorporated hospice and palliative care services for patients at the end-of-life (Shepley, 1999).

Windows and Nature Views in Hospitals. In one of the earliest studies on nature's effect on hospital patients, Roger Ulrich compared records of gallbladder surgical patients in a Pennsylvania hospital. Patients in windowless and windowed rooms were matched for age, sex, smoker status, weight, and other factors. On average, patients with views of trees spent less time in the hospital and were administered fewer doses of strong narcotics (Ulrich, 1984).

Verderber (1986) later examined “person-window transactions” in a hospital environment, wherein a photo questionnaire was administered to 125 staff members and 125 inpatients in 6 hospitals. Photos of a variety of rooms, with a spectrum of visual access to the outdoors (from windowless to windowed) were shown to respondents and questions were asked regarding preferences in the photos as well as in the respondent’s actual physical environment. These patients expressed that the most desirable views from therapy rooms were of lawns, trees, vistas, and of the surrounding neighborhood. While natural environment surrogates like daylighting and potted plants were less preferable than direct views of nature, they nonetheless “appeared to help satisfy human informational needs.” Disliked photos included those of windowless rooms (architectural windowlessness) and rooms with window views of brick walls or other uninteresting, natureless scenes (psychological windowlessness) (Verderber, 1986).

Verderber and Reuman (1987) explored staff-patient discrepancies in responses to windows and nature views in the Physical Medicine and Rehabilitation [PMR] areas of 6 hospitals in the Chicago area. Greater proximity to the window was found to be beneficial to all patients, even those with poor vision. Among staff members, working in areas far from an outdoor view was associated with lower well-being for those who lived than 2 miles away from the hospital (Verderber & Reuman, 1987).

Hospital Healing Gardens. Healing gardens are another promising way of integrating natural elements into healthcare design. Gardens offer respite for staff, parents, and patients who are able to visit or view the gardens.

In a post-occupancy evaluation [POE] intended to analyze the effectiveness of the Leichtag Family Healing Garden, housed within a children's hospital in San Diego, the healing garden was found to be generally effective, but underused. This healing garden was built for several purposes: to reduce stress, to enhance healing and feelings of hope, and to increase patient and family satisfaction with their healthcare service. To gauge the garden's success in achieving these objectives, a visual analysis of the garden, detailed behavioral observations, surveys, and interviews were conducted (Whitehouse et al., 2001).

The garden was most used by families; staff also used the space for respite. However, approximately half of visitors to the garden only stayed for 5 or fewer minutes. Survey data indicates that the garden was effective in reducing the stress and increasing the customer satisfaction of parents. A major barrier of use was the lack of knowledge of the garden exhibited in nearly half of families. Common suggestions for improving the garden were increasing foliage and increasing spaces giving children the opportunity to play (Whitehouse et al., 2001), which is also a common design recommendation for hospice healing gardens (Cooper-Marcus & Sachs, 2013; Cooper-Marcus & Barnes, 1999).

Another POE examines a pediatric cancer center's three healing gardens. The methodology of this POE built upon Whitehouse's prior POE of the Leichtag Family Healing Garden. Instead of focusing on satisfaction, patterns of use were examined through 20 hours of observation for each garden (60 overall). In addition to garden usage patterns, window usage (in windows adjacent to the garden) was also observed.

It was found that patients use the garden the least as compared to visitors and staff members; adults used the gardens the most and adolescents the least, with children using it less than adults and more than adolescents. Regarding window usage (blinds open vs. shut in windows adjacent to the garden), usage was negatively correlated with larger numbers of people in the garden. In other words, the more people were in the garden, the less likely people with windows adjacent to the garden were to open their blinds (Sherman, Varni, Ulrich, & Malcarne, 2005).

Design Recommendations for Nature in Hospice Environments

Connection to nature has been identified as a crucial challenge to consider in the design of residential hospice environments, especially considering that patients have a tendency to spend an increasing amount of time indoors when nearing end-of-life (Kader & Diaz Moore, 2015). Despite a general lack of empirical research on the implications of incorporating nature features in hospice environments, there are a substantial amount of design guidelines for hospice residences that recommend the provision of nature. For the purposes of this research, features are categorized as general nature features, indoor features, or outdoor features.

General architectural features purported to support nature connections include large windows with natural views, patios or balconies adjoining patient rooms, and accessibility to outdoor areas that facilitate respite for patients and families (Cooper-Marcus & Sachs, 2013; Cooper-Marcus & Barnes, 1999). Indoor features of interest include a natural material palette, such as wood or stone (Verderber, 2014) while recommended features of outdoor landscaping specifically include alcoves and arbors

providing privacy for contemplation (Verderber, 2014) and birdfeeders (Cooper-Marcus & Sachs, 2013; Cooper-Marcus & Barnes, 1999).

Research Questions and Hypotheses

The present study was intended to gauge the degree to which hospice staff members' opinions regarding features facilitating access to nature align with the aforementioned design guidelines on this topic. The following research questions guided the data collection and analysis of the study, which will be described in detail in the following sections:

1. Corroboration of preexisting design guidelines for nature in the hospice setting
2. Importance of architectural features providing access to nature in hospice residences
3. Importance of architectural features providing access to nature in hospice residences in relation to various user groups of the space
4. Effectiveness of current hospice residences in implementing these nature-providing architectural features
5. Effectiveness of current hospice residences in implementing these features in relation to their setting

The independent and dependent variables relating to these research questions, as well as the data analysis conducted to test hypotheses can be seen in Table 1.

Table 1. Research Hypotheses and Data Analysis

Hypotheses	Variables		Data Analysis
	Independent	Dependent	
<i>Hypothesis One: Corroboration of Design Guidelines</i>			
Interviewees will corroborate the current design guidelines regarding the provision of nature in hospice facilities	n/a	n/a	Qualitative Content Analysis
<i>Hypothesis Two: Importance of Features</i>			
Some features providing access to nature will be deemed by staff member respondents to be significantly more important than other features.	Feature	Relative importance rankings of features providing access to nature	Kruskal-Wallis one-way ANOVA
<i>Hypothesis Three: Importance of Features and User Groups</i>			
The importance of features, as reported by staff members, will vary based on the user group being considered.	User Group (patient, staff, or visitor)	Relative importance rankings of features providing access to nature	Kruskal-Wallis one-way ANOVA
<i>Hypothesis Four: Effectiveness of Features</i>			
Some features providing access to nature will be significantly more effectively provided in respondents' facilities.	Feature	Relative effectiveness ratings of features providing access to nature	Kruskal-Wallis one-way ANOVA

*Hypothesis Five:
Effectiveness of Features
and Setting*

The effectiveness of hospice residences in providing physical and/or visual access to nature will vary based on the surrounding area of the facility. I hypothesize that rural facilities will more effectively provide access to nature than facilities in suburban and urban settings, emphasizing the importance of focusing on the development of natural spaces in suburban and urban facilities.	Surrounding environment of facility (rural, suburban, urban)	Effectiveness ratings of features providing access to nature	Kruskal-Wallis one-way ANOVA
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Methods

In addition to the preceding comprehensive review of the literature, this study employed semi-structured interviews to corroborate the importance of particular features providing nature in residential hospice environments, identify additional features that may aid in this goal and gather firsthand accounts regarding the importance of nature in hospice environments. This process culminated in the generation of a survey, grounded in knowledge obtained through literature and interviews, intended to gauge the importance and effectiveness of these features in existing hospice facilities and the relationship of these specific features to varying user groups, including patients, visitors, and staff.

This study was implemented in two phases. The first phase included interviews with staff members and volunteers at a hospice residence to corroborate common

design recommendations for residential hospices and to identify features that provide access to nature. The third phase consisted of the generation and distribution of a survey generated from a review of the literature and data gathered from interviews.

Phase I: Semi-Structured Interviews

To collect information regarding common ways in which patients engage with nature, interviews were conducted with staff and volunteers of Hospicare, a hospice and palliative care service provider operating in the Ithaca and Cortland, NY areas, with a 6-bed residential facility located in Ithaca, NY. The volunteer population is of particular interest, as many volunteers have previously experienced hospice environments as family members of residents and therefore can offer firsthand experiences. Volunteers performed a variety of tasks including bedside visitation, food preparation, and gardening. Possible staff and volunteer interviewees were identified by administrators at the organization.

The researcher's recruitment script was distributed to potential interviewees via email listserv by the facility's residence manager. Out of the 15 participants responding to the initial email, 9 continued correspondence and consented to participate. The final pool of interviewees was comprised of 2 staff members and 7 volunteers.

Interviews were conducted in a semi-structured manner, to better allow for follow-up questions and deviations from the interview script. Interviewees were asked to reflect on the role of architectural features allowing residents, visitors, and staff to access nature visually and physically. This included questions pertaining to firsthand observations of the needs, wishes, and behaviors of patients and their families, their

own opinions on the role of nature in hospice, and their perception of specific architectural features. A complete list of interview questions can be viewed in Appendix A. Interviews were approximately 30 minutes in duration, with the shortest lasting 12 minutes, and the longest lasting 47 minutes.

Interview transcripts were generated and data were analyzed using a qualitative data analysis method based on the grounded theory described by Lincoln and Guba (1985). Full interview transcripts can be viewed in Appendix B. A line-by-line analysis of the transcripts was conducted and each quotation representing a distinct idea pertaining to nature, specifically in terms of the design of hospice facilities, was copied onto a notecard. On each card, the general topic to which the quotation belonged was written on the back. Additionally, each card was encrypted with a code identifying the interviewee. A total of 52 cards were generated.

Following the generation of these cards, the interviewer sorted the cards based on common topics. For example, cards pertaining to ponds and fountains were both sorted into a common 'water feature' section. These common topics identified, in conjunction with information gathered from the literature review, formed the basis for the generation of a survey, which will be described in detail in the following section.

Phase II: Survey

From the previously described literature review and interviews, a hospice staff survey was generated. This survey is intended to assess the importance of the architectural features identified through the literature review and interviews as well as the degree to which these features are present in existing hospice facilities. A survey draft was generated based on the initial review of the literature and the results of the

interview qualitative analysis were used to modify, add, or exclude questions for the final iteration of the survey. Features recommended in the design guidelines reviewed that were also corroborated by the interviews were included in the final survey. The final survey, including the total list of design features corroborated by interviews, can be viewed in Appendix C.

The survey is comprised of 6 demographic questions, 12 multi-part questions in regards to the importance and effectiveness of architectural features in hospice residences, based on demographic (patient, staff, or visitor), and 2 open-ended questions. The survey took approximately 15 minutes to complete.

Survey participants were recruited from the Hospice House Network, an email list for front-line and non-front-line staff members at hospice residences located across the United States. Potential participants were contacted via email by a Hospicare administrator with access to the listserv and the email included a URL to the survey on Qualtrics, an online survey platform. Responses were gathered from May 10, 2017 to June 2, 2017. Three randomly distributed \$50 gift certificates were used as an incentive to encourage subject participation and increase the number of responses. Thirty-one responses were gathered, however 6 participants did not complete the survey, leaving the final sample size at twenty-five ($n=25$).

The data was cleaned and processed using IBM SPSS Statistics, Edition 23. Data was first analyzed descriptively. The inferential data analysis was based on the following research questions and the appropriate independent, dependent, and moderating variables, which can be viewed in Table 1.

Results

The following results are grouped based on general demographic information of the survey participants, followed by data from both the interviews and survey addressing the research questions previously outlined in Table 1.

General Survey Demographic Results

The job titles of the participants were reported as such, in order from most frequent to least frequent: staff primarily interacting with residents (e.g. healthcare provider) ($n = 11$), staff not primarily interacting with residents (e.g. administration) ($n = 8$), and other job titles ($n = 6$). ‘Other’ job titles written in included receptionist, facility maintenance, and architect. Respondents possessed an average of 13.08 years of experience in the field of hospice, and an average of 8.36 years working in their current facility.

The majority of participants’ current facilities were located in a rural setting ($n = 17$), followed by suburban settings ($n = 7$). No participants identified their facilities as being located in an urban setting. The average number of beds in the respondents’ facilities was 6.83. Most facilities were not attached or directly adjacent to a general hospital ($n = 22$).

Research Question 1: Corroboration of Design Guidelines



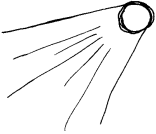
The results of the qualitative analysis of interviews summarized here are presented in the form of overarching categories that emerged, as well as the underlying subtopics expressed.

Windows. The topic of windows was highly discussed and contained a wide variety of related considerations, including the idea of viewing the weather and

season's change, the importance of panoramic views of the landscape, daylight, the potential for fresh air/natural scents, and natural sounds. Weather and seasons were the most-mentioned subtopic, with 55% of participants agreeing that being aware of the changing of seasons plays a crucial and existential role in the death process. One participant noted,

“When you are getting ready to die, to go back to the Earth, what better thing than to be seeing it? Watching the seasons, watching the rain and snow.”

Panoramic views were the second most highly mentioned, with 44% of interviewees agreeing that these views are conducive to stress reduction, not only for patients, but for all stakeholders, including visitors and staff.

Category	Topic	Quote
Windows		
	Weather	“When you can look out at rain and snow and sun, it’s different than being in the bowels of a hospital where you can have no idea what happened during the day.”
	Panoramic views	“I think it must be very calming when you are visiting someone you love to be able to sit there and hold hands and look out the window for a while, instead of staring at nothing as you might in a hospital.”
	Daylight	“We didn’t use a lot of window treatments, because we wanted to let the light in, so we used lots of valences... We had blinds, but we tried to keep them open all the time so the patients could look out and light would come in. Patients always appreciated that.”



	Natural scents/fresh air	“Smells can be very powerful. Smells, to me, immediately throw me back to other times, like the smell of wood smoke at night.”
	Natural sounds	“I think [sound] is very important. Birds chirping, the sounds of water are all healing in my opinion.”

Table 2. Interview Topics—Windows

Outdoor landscaping. Outdoor landscaping was the most-discussed overarching category; topics contained within this category include manicured healing gardens, outdoor flowers, vegetable/herb gardens, trees, and unlandscaped or wild nature. A majority of participants (77%) brought up healing gardens and the importance of flowers specifically in hospice design. The idea of visibility of these features from patient bedrooms was also a common sentiment. One interviewee mentioned this possibility, even suggesting that within urban environments, visible outdoor gardens may be able to act as a proxy for more panoramic landscape views typically provided in more rural facilities:

“I think is a wonderful, something that always interested me, was basically decorating rooms, for people dying. And starting with being located someplace beautiful—to have wonderful views. And even if it's a in a facility, or a more urban environment, I think of that idea, the small garden outside a window. Something where you can have that view.”

Another facet of gardens mentioned was the potential for food production, in the form of herb and/or vegetable gardens. One participant noted that they were aware of

facilities using a garden's harvest in dishes prepared at the facility, fostering a farm-to-table mentality and further connecting residents to their natural surroundings.




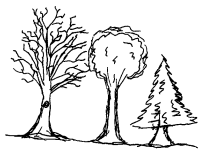

Outdoor Landscaping		
	Healing garden	<p>“There was one man, who had been a good gardener, who moved his bed so he could get a view of the garden. So I think it’s incredibly important and respectful to provide those views.”</p>
	Outdoor flowers	<p>“Someone sat in a wheelchair just by the front door, by the flowers. If you go in the summer, there are flowers blooming everywhere, flowering trees, and some people sit outside.”</p>
	Vegetable/herb garden	<p>“How extraordinary would it be to have flowers growing outside as well as vegetables, so that the nurses could have fresh salad greens both for themselves and the patients.”</p>
	Trees	<p>“One of the things that is particularly effective is the white birch trees because they’re dramatic and in any season they are very evocative. They evoke certain things—the culture of the northeast or storytelling of the past. Birch trees have a lot of significance in our culture and Native American culture as well.”</p>
	Unlandscaped nature	<p>“It’s sort of in a grasslands type of setting. They have natural plantings and wetlands, so there is a more natural type of pine barrens.”</p>

Table 3. Interview Topics—Outdoor Landscaping

Wildlife. Wildlife was considered to be a highly important factor and birdfeeders were lauded as a very popular feature due to their attraction of a variety of wildlife including birds, squirrels, and chipmunks, which were brought up by 77% of participants. Wildlife is perceived as an “entertaining, fun, and cheerful” presence in hospice facilities, bringing a welcome positive distraction for various stakeholders. A staff member reflected on her own affinity for viewing the wildlife from the windows of her workplace, while also emphasizing the importance for patients and their families,

“The feeders of course draw in the birds and squirrels. That’s what people want. Drawing wildlife in is really a good thing for the patient population and the family population.”

Plantings attracting insects such as butterfly bushes were also identified as well-loved features attracting wildlife.



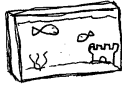

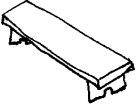
Wildlife		
	Birdfeeders attracting wildlife (e.g. birds, squirrels, etc...)	“The birds are pretty active. They come and use the birdfeeders, and the squirrels come and the chipmunks come, and quite a few of the residents are pretty aware and get a lot of satisfaction out of watching what goes on.”
	Plants attracting insects (e.g. bumblebees)	“The focus gets very close; they are focusing on the bumblebee on the flower right in front of them—things they might not have spent time looking at.”
	Fish tanks	“A huge fish tank is something that brings nature in... It’s quite beautiful and large and people love it.”

Table 4. Interview Topics—Wildlife

Seating. The topic of outdoor seating was approached from various perspectives including from a patient perspective with accessible outdoor decks (adjoining patient rooms) allowing for the beds of immobile residents to be rolled into the outdoors, as well as outdoor benches for more mobile residents. One volunteer elucidated the importance of providing other types of outdoor seating for primarily staff and visitors as well, stating,

“Not so many of our patients could go outside because they were that ill, rarely some, but we did take them out there with their families if possible. But for the families, we had bistro sets set up, arbors with greenery, and stone benches and so on the families or whoever could sit and partake in the nice day.”

For these visitors and staff, outdoor dining areas and spaces providing privacy, such as more enclosed alcoves or arbor structures, may provide much-needed spaces for relaxation and respite.

Seating		
	Accessible decks	“They have floor-to-ceiling windows that open and what that happens is, you can move the patient out onto a deck.”
	Outdoor benches	“Those benches right outside the front door are very nice for family and guests to sit, or for the residents to have privacy for themselves.”



	Outdoor dining areas (e.g. picnic tables, bistro sets, etc...)	"I think that the outside is good for the staff as well. There are picnic tables, they can eat lunch out there."
	Outdoor spaces providing privacy (e.g. arbors, alcoves, etc...)	"Maybe there could be protective circular enclosing areas for family groups to have some privacy to be in nature and be able to think and bond with each other. That'd be really pretty."

Table 5. Interview Topics—Seating

Walkways. One commonly mentioned activity of visitors, staff, and even patients was walking. Participants indicated that the vast majority of people participating in nature walks at hospice facilities are family members, rather than residents. However, participants also noted that some residents are well enough to appreciate outdoor walks or being taken out in a wheelchair, with one interviewee observing,

"There's an elevated wood walkway with a railing that goes around the building. I've seen patients with family members take small short walks on that."

This usage of walkways by patients emphasizes in particular the need for accessible and safe walkways.


Walkways		
	Walking paths	"There's an elevated wood walkway with a railing that goes around the building. I've seen patients with family members take small short walks on that."

Table 6. Interview Topics—Walkways

Water features. While not mentioned by a large number of participants, water features such as ponds and fountains were viewed by a few to be of a very high importance in hospice residences, as one staff member emphasizes,

“You need to have a water source, even if it's a pain in the neck to maintain.

The water source is always so nice.”

However, the additional staffing considerations associated with the need for maintenance carry cost implications that must be weighed when considering implementing a water feature.



Water Features		
	Ponds	<p>“Of course, the most wonderful interaction with nature is that they can look out and see that beautiful pond. They often comment on that. Some residents, believe it or not, are not that sick. They are dying, of course, but sometimes people get better when they come. So some people are able to go outside and walk around the pond with their families.”</p>
	Fountains	<p>“There were doors that opened up into the area that we had a fountain in. Right when you would look from the beginning of the hospice right through, you would see that fountain in your direct line of sight... It was always nice to have that water source.”</p>

Table 7. Interview Topics—Water Features


Indoor décor and plants. In terms of indoor décor, flowers, plants, and nature artwork were all raised as possible ways in which nature elements could be brought indoors. Flowers provide opportunities for personalization and choice among residents, explained one staff member,

“One of the things that volunteers or anyone can do is collect flowers and put them around...Sometimes people will ask you for certain flowers. If you ask if someone wants a bouquet, they'll often say they want something in particular. Sometimes people don't realize that they can request something, so it's so nice to be able to say I can get you a fresh bouquet.”

Nature artwork may also play a role in providing opportunities for personalization or positive distraction,

“At some point in that [death] process you are going somewhere else, and you are going there all alone. And it can be, whether it's a beautiful work or art, or a photograph of nature or a beautiful place. You can make it into your destination if you want to. And a couple of times I have actually noticed that there were pictures like that in people's rooms. Very often people will bring artwork or photography from people's homes.”

Given the lack of mobility of many residents, these simple bedside interventions should not be overlooked.

Indoor Décor and Plants		
	Indoor flowers	<p>“You can pick flowers anytime. When my person was there, I would pick flowers outside and put them in his room because he loved flowers, so I made sure there were always fresh flowers there. I don't know if they tell every visitor that, but there are a lot of vases around.”</p>



	Indoor plants	“I think that actually bringing plants indoors is a good thing for people. Its really nice to have plants indoors. As long as you have staff to take care of them.”
	Nature artwork	“I can see doing things with pictures, artwork and nature artwork, woods, streams, paths into the woods.”

Table 8. Interview Topics—Indoor Décor and Plants

Natural materials. Materiality was additionally mentioned by a small number of participants; natural materials or materials emulating nature, such as wood and stone were considered to be preferred materials in the renovation or new construction of hospice facilities.

“We had window seats that were made out of wood. We left the natural wood; we did not cover them...”

This preference seemed to stem from the view of many participants that materials like wood and stone tend to convey a more natural feeling throughout the facility.


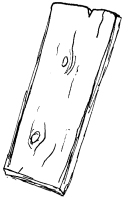
Natural Materials		
	Stone	“...Hardscape being the stonework and not having it look fake. So having natural materials, like stone and not just bricks and concrete. Actually, a handcrafted feel to it is very important to most designs.”
	Wood	“They tried to bring the nature in...we used a lot of natural wood. We didn't want to use a lot of metal, so we used a lot of wood.”

Table 9. Interview Topics—Natural Materials

Research Question 2: Importance of Features

Frequencies of mentions of design features during interviews were tallied during data analysis, revealing a hierarchy of features in terms of how popular the topics were. The survey included questions aimed at ascertaining the importance of particular features in hospice facilities to particular user groups (patients, staff, and visitors). All importance and effectiveness scores are reported as a 1-7-point Likert score mean, with a rating of 1 representing complete unimportance and 7 representing complete importance.

Interview Design Feature Importance. The most mentioned topics included manicured landscaping (7), outdoor flowers (7), weather (5), birdfeeders (5), and ponds. The least discussed topics, only mentioned by one participant each, were comprised of unlandscaped nature, plants attracting insects, fish tanks, fountains, and wood as a natural material. A full listing of design features discussed throughout interviews and a tally of the number of participants citing each feature can be seen in Table 10.

Topic	# Mentions	Topic	# Mentions
Manicured nature (healing garden)	7	Outdoor dining areas (e.g. picnic tables, bistro sets, etc...)	2
Outdoor flowers	7	Outdoor spaces providing privacy (e.g. arbors, alcoves, etc...)	2
Weather	5	Indoor flowers	2
Birdfeeders attracting wildlife (e.g. birds, squirrels, etc...)	5	Indoor plants	2
Ponds	5	Nature artwork	2
Panoramic views	4	Stone	2
Accessible decks	4	Outdoor dining areas (e.g. picnic tables, bistro sets)	2

Daylight	3	Outdoor spaces providing privacy (e.g. arbors, alcoves, etc...)	2
Vegetable/herb garden	3	Indoor flowers	2
Trees	3	Unlandscaped nature	1
Outdoor benches	3	Plants attracting insects (e.g. bumblebees)	1
Walking paths	3	Fish tanks	1
Natural scents/fresh air	2	Fountains	1
Natural sounds	2	Wood	1

Table 10. Interview topics discussed and number of participants raising topic

Survey Design Feature Importance—Patients. When asked to reflect on the importance of the aforementioned design features to patients in their facilities, staff indicated that window views ($M = 6.64$), fresh air ($M = 6.24$), ample daylight ($M = 6.17$), features attracting wildlife ($M = 6.16$), bed-accessible outdoor spaces ($M = 6.04$), a panoramic viewpoint ($M = 5.96$), manicured landscaping ($M = 5.96$), and soothing natural sounds ($M = 5.92$) were of the highest level of importance, in that order.

According to a Kruskal-Wallis one-way ANOVA with pairwise multiple comparisons and a Dunn-Bonferroni correction, these highest-rated features were all seen as significantly more important than child-friendly outdoor features ($M = 4.76$). Additionally, window views, fresh air, daylight, and wildlife were rated as significantly more important than water features ($M = 5.0$) and features memorializing former residents ($M = 4.84$). Window views, the most important feature, were also deemed significantly more important than nature artwork ($M = 5.48$), indoor plants ($M = 5.44$), and natural materials ($M = 5.32$). A detailed ranking, as well as mean importance scores for all features and p-values for all significant relationships can be viewed in Table 11.

Survey Design Feature Importance—Staff. In terms of these features' importance to staff members, daylight ($M = 6.52$), fresh air ($M = 6.44$), and window views ($M = 6.28$) emerged as the three highest-rated features. These features were found by a Kruskal-Wallis one-way ANOVA test with pairwise multiple comparisons to be significantly more important than natural materials ($M = 5.24$), water features ($M = 5.16$), and child-friendly features ($M = 5.0$). Daylight and fresh air were also significantly higher rated than nature artwork ($M = 5.32$), features providing privacy ($M = 5.32$), and unlandscaped areas ($M = 5.28$). Additionally, daylight was rated significantly more important than indoor plants ($M = 5.56$) and memorial features ($M = 5.44$). A detailed ranking of all features' importance ratings to staff and p-values for all significant relationships can be viewed in Table 12.

Survey Design Feature Importance—Visitors. When asked to reflect on the importance of these design features to visitors to hospice facilities, staff identified window views ($M = 6.48$), plentiful daylight ($M = 6.36$), and fresh air ($M = 6.32$) as being the highest-rated three features. After performing a Kruskal-Wallis one-way ANOVA, these three features were seen as significantly more important than the lowest-rated four features: nature artwork ($M = 5.36$), indoor plants ($M = 5.32$), water features ($M = 5.24$), and natural materials ($M = 5.24$). A detailed ranking of all features, including mean importance scores and p-values for all significant relationships can be viewed in Table 13.

	Patient Nature Design Features Importance (With pairwise comparison p-values)																	
	M	SD																
Window views	6.64	0.638	0.001	0.001	0.001	0.002	0.001	0.004	ns	ns	ns	ns	ns	ns	ns	ns		
Fresh air	6.24	0.831	0.001	0.003	0.002	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Plentiful daylight	6.17	0.868	0.001	0.012	0.007	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Features inviting wildlife (e.g. birdfeeders)	6.16	0.688	0.001	0.011	0.006	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Bed-accessible outdoor spaces (e.g. patio or deck adjoining patient room)	6.04	0.935	0.005	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Panoramic viewpoint (e.g. wide view of surrounding landscape)	5.96	0.841	0.015	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Manicured landscaping (e.g. gardens)	5.96	0.889	0.019	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Soothing natural sounds	5.92	0.862	0.022	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Unlandscaped areas (e.g. wild nature)	5.76	0.97	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Features affording privacy (e.g. arbors, alcoves, etc...)	5.6	1.258	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Nature artwork (e.g. landscape paintings, photographs)	5.48	1.046	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Indoor plants	5.44	0.87	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Natural materials	5.32	1.249	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Water features (e.g. fountain)	5	0.816	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Features memorializing former residents (e.g. engraved bricks in a garden)	4.84	1.313	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Child-friendly outdoor features (e.g. spaces encouraging play)	4.76	0.97	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
			Child-friendly	Memorial	Water Features	Natural Materials	Indoor plants	Nature art	Privacy	Unlandscaped	Sounds	Manicured	Panoramic View	Bed-accessible	Wildlife	Daylight	Fresh air	Window views

Table 11. Patient Design Features Importance Scores and P-Values

Staff Nature Design Features Importance Scores (With pairwise comparison p-values)																		
	M	SD																
Plentiful daylight	6.52	0.51	0.001	0.001	0.001	0.002	0.002	0.001	0.039	0.034	ns	ns	ns	ns	ns	ns	ns	
Fresh air	6.44	0.583	0.001	0.001	0.001	0.01	0.009	0.002	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Window views	6.28	0.737	0.001	0.004	0.015	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Features inviting wildlife (e.g. birdfeeders)	6	0.866	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Soothing natural sounds	5.76	0.831	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Manicured landscaping (e.g. gardens)	5.72	0.737	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Bed-accessible outdoor spaces (e.g. patio or deck adjoining patient room)	5.72	0.891	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Panoramic viewpoint (e.g. wide view of surrounding landscape)	5.64	0.86	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Indoor plants	5.56	1.003	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Features memorializing former residents (e.g. engraved bricks in a garden)	5.44	1.387	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Nature artwork (e.g. landscape paintings, photographs)	5.32	0.9	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Features affording privacy (e.g. arbors, alcoves, etc...)	5.32	1.069	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Unlandscaped areas (e.g. wild nature)	5.28	1.208	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Natural materials (e.g. wood, stone, etc...)	5.24	0.97	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Water features (e.g. fountain)	5.16	0.898	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Child-friendly outdoor features (e.g. spaces encouraging play)	5	0.933	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
			Child-friendly	Water features	Natural materials	Unlandscaped	Privacy	Nature art	Memorial	Indoor plants	Panoramic view	Bed-accessible	Manicured	Sounds	Wildlife	Window views	Fresh air	Daylight

Table 12. Staff Design Features Importance Scores and P-Values

		Nature Design Features Importance to Visitors (With pairwise comparison p-values)																
	M	SD																
Window views	6.48	0.586	0.001	0.001	0.005	0.004	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Plentiful daylight	6.36	0.638	0.008	0.004	0.039	0.032	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Fresh air	6.32	0.9	0.008	0.004	0.038	0.031	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Manicured landscaping (e.g. gardens)	6.08	0.702	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Features inviting wildlife (e.g. birdfeeders)	6.08	0.759	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Bed-accessible outdoor spaces (e.g. patio or deck adjoining patient room)	5.96	1.02	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Soothing natural sounds	5.92	0.83	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Features memorializing former residents (e.g. engraved bricks in a garden)	5.92	0.909	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Panoramic viewpoint (e.g. wide view of surrounding landscape)	5.8	0.866	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Features affording privacy (e.g. arbors, alcoves, etc...)	5.8	1.041	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Unlandscaped areas (e.g. wild nature)	5.56	1.044	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Child-friendly outdoor features (e.g. spaces encouraging play)	5.56	1.193	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Nature artwork (e.g. landscape paintings, photographs)	5.36	0.995	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Indoor plants	5.32	1.145	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Water features (e.g. fountain)	5.24	0.879	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
Natural materials	5.24	0.97	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns		
			Natural materials	Water features	Indoor plants	Nature art	Child-friendly	Unlandscaped	Privacy	Panoramic view	Memorial	Sounds	Bed-accessible	Wildlife	Manicured	Fresh air	Daylight	Window views

Table 13. Visitor Design Features Importance Scores and P-Values

Research Question 3: Importance of Features and User Groups

When examining the differences between importance scores for the same features between user groups, only two features exhibited significant differences between user groups—features memorializing former residents and child-friendly outdoor features. According to a Kruskal-Wallis one-way ANOVA with pairwise multiple comparisons and a Dunn-Bonferroni correction, both features were considered to be significantly more important to visitors than to patients. Table 14 contains a complete description of these relationships and includes p-values for significant relationships.

Research Question 4: Effectiveness of Features

In terms of rating how effectively the responding staff members' facilities provide these design features, manicured landscaping ($M = 6.71$), window views ($M = 6.71$), daylight ($M = 6.63$), features attracting wildlife ($M = 6.58$), unlandscaped areas ($M = 6.42$), panoramic viewpoint ($M = 6.33$), fresh air ($M = 6.30$), and memorial features ($M = 6.08$) were all provided significantly more effectively than child-friendly features according to a Kruskal-Wallis one-way ANOVA test with pairwise multiple comparisons. Additionally, manicured landscaping, window views, daylight, features attracting wildlife, and unlandscaped areas were considered to be provided more effectively in respondents' facilities than outdoor features affording privacy ($M = 5.17$). The top three features in terms of effectiveness, manicured landscaping, window views, and daylight, also garnered higher scores than water features ($M = 5.17$). The full ranking, as well as mean effectiveness scores for all features and p-values for all significant relationships can be viewed in Table 15.

		Mean Nature Design Feature Importance Scores by User Group		
		Patient	Staff	Visitor
General Design Features	Soothing natural sounds	5.92	5.76	5.92
	Water features (e.g. fountain)	5	5.16	5.24
	Panoramic viewpoint (e.g. wide view of surrounding landscape)	5.96	5.64	5.8
	Natural materials (e.g. wood, stone, etc...)	5.32	5.24	5.24
	Features memorializing former residents (e.g. engraved bricks in a garden)	4.84*	5.44	5.92*
Indoor Design Features	Window views	6.64	6.28	6.48
	Plentiful daylight	6.17	6.52	6.36
	Fresh air	6.24	6.44	6.32
	Nature artwork (e.g. landscape paintings, photographs)	5.48	5.32	5.36
	Indoor plants	5.44	5.56	5.32
Outdoor Design Features	Child-friendly outdoor features (e.g. spaces encouraging play)	4.76**	5	5.56**
	Features inviting wildlife (e.g. birdfeeders)	6.16	6	6.08
	Features affording privacy (e.g. arbors, alcoves, etc...)	5.6	5.32	5.8
	Bed-accessible outdoor spaces (e.g. patio or deck adjoining patient room)	6.04	5.72	5.96
	Manicured landscaping (e.g. gardens)	5.96	5.72	6.08
	Unlandscaped areas (e.g. wild nature)	5.76	5.28	5.56

* p<.05

** p<.05

Table 14. Design Features Importance Scores and P-Values Between Groups

			Nature Design Features Effectiveness (With pairwise comparison p-values)															
	M	SD																
Manicured landscaping (e.g. gardens)	6.71	0.55	0.001	0.001	0.009	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Window views	6.71	0.464	0.001	0.001	0.012	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Plentiful daylight	6.63	0.576	0.001	0.003	0.04	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Features inviting wildlife (e.g. birdfeeders)	6.58	0.584	0.001	0.007	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Unlandscaped areas (e.g. wild nature)	6.42	0.881	0.001	0.036	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Panoramic viewpoint (e.g. wide view of surrounding landscape)	6.33	0.816	0.005	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Fresh air	6.3	0.876	0.007	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Features memorializing former residents (e.g. engraved bricks in a garden)	6.08	1.349	0.026	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Natural materials (e.g. wood, stone, etc...)	5.87	1.014	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Nature artwork (e.g. landscape paintings, photographs)	5.87	0.92	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Indoor plants	5.79	1.021	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Soothing natural sounds	5.42	1.666	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Bed-accessible outdoor spaces (e.g. patio or deck adjoining patient room)	5.39	2.105	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Water features (e.g. fountain)	5.17	1.761	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Features affording privacy (e.g. arbors, alcoves, etc...)	5.17	1.308	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Child-friendly outdoor features (e.g. spaces encouraging play)	4.13	2.05	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns

Child-friendly Privacy Water features Bed-accessible Sounds Indoor plants Nature art Natural materials Memorial Fresh air Panoramic view Unlandscaped Wildlife Daylight Window views Manicured

Table 15. Design Features Effectiveness Scores and P-Values

Research Question 5: Effectiveness of Features and Setting

Contrary to Hypothesis 5 described earlier, there were no significant differences found when comparing the effectiveness scores provided across rural, suburban, and urban settings. Potential explanations will be presented in the upcoming discussion section.

Discussion

The discussion of the findings of this research are structured parallel to the research questions raised in Table 1 and include inferences drawn from both the interview and survey phases of the study. The findings of the interview analysis directly informed the development of the survey.

Research Question 1: Corroboration of Design Guidelines

The researcher aimed to corroborate existing design guidelines through interviews with staff and volunteers at a hospice residence. All topics raised throughout the course of the interviews had been previously discussed in the body of design recommendations on hospice facilities (Cooper-Marcus & Sachs, 2013; Cooper-Marcus & Barnes, 1999; Verderber, 2014).

This indicates that the existing body of design guidelines pertaining to hospice facilities adequately describes the variety of needs of stakeholders and the methods through which nature can be provided, as perceived by hospice staff. The topics discussed in interviews that corresponded to the design guidelines reviewed went on to be included in the survey, the findings and interpretations of which will be described in the upcoming sections.

Research Question 2: Importance of Features

Importance of features was gauged through both interviews and surveys. As the interviews were conducted in a semi-structured manner, the researcher relied on participants to discuss which features they deemed to be of great importance with few prompts. A hierarchy of importance thus emerged during data analysis, as certain features were mentioned by a large percentage of participants. The survey gauged importance through a 7-point Likert scale, with lower scores indicating a low level of importance and high scores indicating a high level of importance.

The most commonly discussed features included manicured nature (such as healing gardens), outdoor flowers, the ability to see the weather or seasons through the window, birdfeeders, ponds, panoramic views, and accessible decks.

While all features addressed in the survey were considered to be more or less important, with the lowest mean importance score being $M = 4.76$ (with 4.76 closest to 5, or “somewhat important”), three features emerged as being of the utmost importance to the design of hospice facilities. Window views, daylight, and fresh air were identified as the top three highest-rated features, for all user groups. While there were variations in importance of other features across user groups, the emergence of these three features as being the most important across user groups speaks to the essentiality that these features be carefully considered in the future design of hospice facilities.

In the interviews, as window views were seen to be among the more important features, the survey findings of the importance of this feature has been confirmed. This

corresponds to literature supporting windows as valuable design features providing stress relief in other, less ill, populations (Ulrich, 1984).

Although both fresh air and daylight emerged as neither highly important nor unimportant through the interview analysis, their high importance in the survey analysis is supported by ethnographic research revealing that windows allowing outdoor air into patient rooms were identified as a valuable strategy to improve quality of life at end of life (Sagha Zadeh et al., 2017) and a study suggesting that daylight may be an acceptable proxy for direct nature views (Verderber, 1986). The importance of these bedside interventions is especially crucial to note given that patients nearing end-of-life may exhibit diminishing capabilities to venture outdoors (Kader & Diaz Moore, 2015).

It should be noted that the triangulation of multiple methods can be imprecise, and determination of congruence in findings is often subjective. This lack of consensus between interviews and surveys in regards to the importance of fresh air and daylight does not represent a failure in methodology, but rather indicates a potentially more complex and multifaceted relationship, presenting an avenue for future inquiry into this subject (Jick, 1979).

Research Question 3: Importance of Features and User Groups

When examining the differences between importance scores for the same features between user groups, only two features exhibited significant differences between user groups—features memorializing former residents and child-friendly outdoor features. Both features were viewed to be significantly more important for

visitors than for patients. This is presumably because these features are intended for visitors rather than patients themselves.

The difference in importance between these user groups is no surprise, considering that these features are controversial in the existing literature. For example, memorial features, although common in some cultures such as the United States, are not universally accepted as appropriate additions to a hospice garden (Cooper Marcus & Sachs, 2014). In the United Kingdom, “nearly all hospice managers resist the request to plant commemorative trees or shrubs following the deaths of patients” (Worpole, 2009). Child-friendly features are another delicate subject, with design guidelines recommending that features such as playgrounds be “visible from—but not too near to—patient rooms” (Cooper Marcus & Barnes, 1999).

Research Question 4: Effectiveness of Features

Providing adequate window views, daylight, and fresh air are particularly crucial goals, considering their importance, as described in the previous section. However, fresh air in particular is not provided effectively enough in relation to the other features, especially considering its high importance ratings for patients, staff, and visitors. While it was considered to be the second or third highest rated feature across user groups, it was considered to be the ninth-most effectively provided feature. This lack of implementation may be due to the associated difficulties in regulating the facility’s heating, ventilation, and air conditioning [HVAC] system (Verderber, 2014). However, if implemented without compromising the HVAC system, the benefits include combatting indoor air toxicity and providing personal choice to patients. This sort of disparity in importance and effectiveness illustrates the goals of this research—

to ensure the conscious building of hospice residences to ensure the best outcomes possible for all user groups.

Research Question 5: Effectiveness of Features and Setting

As briefly mentioned earlier, there were no significant differences found when comparing the effectiveness scores provided across rural, suburban, and urban settings, contrary to Hypothesis 5. This hypothesis was based on observations and insights from interviewees suggesting that their rural facility may differ from facilities without such proximity to nature, in terms of providing these features. As will be discussed in the upcoming limitations section, a small sample size and a lack of diversity in settings of those participating in the survey may be one explanation for a lack of data in this area, as an overwhelming majority of participants' facilities were located in rural settings.

Miscellaneous Findings

Flexibility. Additional comments made during interviews regarding the highly variable preferences of patients in hospice environments serve as a reminder to provide flexible environments allowing for personalization. One staff member noted,

“Some people though, do not want their curtains opened. I never understand that because it’s so not me. I would want as much light as possible, but for some people its uncomfortable, so we just do what they ask.”

The idea of flexibility and non-prescriptive design interventions is not a new theme in hospice research. In an ethnographic study examining features facilitating high quality of life at end-of-life, flexibility, especially in terms of lighting, emerged as a recommendation (Sagha Zadeh et al., 2017).

Maintenance. Another miscellaneous topic commonly raised throughout the course of interviews pertained to the consideration of maintenance when making design decisions. Participants tended to view features such as ponds to have potentially cost-prohibitive costs in terms of staffing and maintenance. The consideration of maintenance mirrors research findings in the field of mental and behavioral health facility design. In a survey of staff members in mental and behavioral health facilities, provision of a well-maintained environment was considered to be the most important environmental quality in mental and behavioral health facilities, having previously been shown to improve staff mood and increase satisfaction (Shepley et al., 2017).

Design Recommendations

By utilizing interviews and survey tools, the intention of this research was to generate design guidelines to assist in the future renovation and building of hospice residences. It is the researcher's hope that the hierarchy of features identified through the survey rankings will assist decision-makers in choosing the most worthwhile design features when cost-effectiveness is a priority. The design guidelines generated from the findings of this study can be viewed in Table 16.

Design Guideline	Description
<p>1. Provide window views.</p>  <p>Figure 1. Example of window views (ARUP, 2010)</p>	<p>As one of the top three highest-rated features across all user groups, window views are a crucial element to incorporate into residential hospice environments.</p>
<p>2. Provide daylight.</p>  <p>Figure 2. Example of daylighting (RIBAJ, 2017)</p>	<p>Like window views, daylight was also considered to be one of the top-three features in terms of importance, across all user groups.</p>
<p>3. Provide potential for fresh air.</p>  <p>Figure 3. Example of provision of fresh air (GlassEyes View, 2007)</p>	<p>Fresh air, along with the previously mentioned window views and daylight, was among the top three most important features assessed in the survey and is supported by research as a feature that may improve quality of life at end-of-life (Sagha Zadeh et al., 2017).</p>
<p>4. Attract wildlife.</p> 	<p>Staff and volunteers reacted enthusiastically to design features inviting wildlife. Nearly all interviewees mentioned wildlife as a form of positive distraction for staff and patients, which is also considered to be a highly important feature by designers (Cooper-Marcus & Sachs, 2013; Cooper-Marcus & Barnes, 1999).</p>



<p>Figure 4. Example of a birdfeeder attracting wildlife (Backyard Birdwatcher, n.d.)</p>	
<p>5. Consider maintenance.</p>  <p>Figure 5. Pond maintenance considerations (Caring Pets, 2017)</p>	<p>An additional consideration mentioned throughout the course of interviews was the topic of maintenance, which may carry additional staffing and cost responsibilities. Therefore, during the design process, the lifecycle costs of specific design features should be considered.</p>
<p>6. Provide flexibility.</p>  <p>Figure 6. Example of flexible lighting solutions (BB Commercial Solutions, 2017)</p>	<p>One notion that came up during interviews, although not necessarily pertaining to nature, is the idea of personal preference and the importance of avoiding prescriptive solutions for all. For example, while many patients may have a preference for daylight, there will be dying patients who are averse to sunlight. Therefore, flexibility should be a high priority.</p>

Table 16. Design Guidelines Derived from Literature Review and User Feedback

Limitations and Future Directions

This research, although successful in terms of its original intentions, exhibited limitations in terms of its scale and measures, which are outlined below.

Sample. Although this study achieved its intended aims, it was limited in certain aspects of its scope. The scope of the interviews, for example, was limited in that the sample was entirely comprised of staff and volunteers of Hospicare Ithaca, a rural facility in upstate New York. This provides only one climate for examination, a limitation illustrated in other case studies of this type, including a study examining children's hospitals located in Texas finding that unpleasant weather and a lack of

shade were a major barrier to usage of outdoor spaces (Pasha, 2013). In the case of a facility in upstate New York, a significant portion of the year may be too cold for the use of outdoor spaces. Therefore, the generalizability of information gathered from the participants may be limited.

The survey sample, recruited from a nationwide hospice listerv aimed to address this limitation by involving a larger and more diverse population sample in terms of geographical location. However, due to time and budgetary constraints, the sample of respondents was relatively small. Additionally, no home facility of the 25 respondents was identified as being in an urban setting. Therefore, it was not possible to fully test Hypothesis 5 in the manner that was originally intended. Future studies should ensure that hospices from a wider variety of locales are included in investigations on the effect of setting on the presence of nature features in the facilities.

Measures. As a study investigating facilities catering to a vulnerable population, difficulties with interacting with the patient population led to the decision to focus on the insights of staff members and volunteers rather than patients or families. Therefore, any conclusions must be considered within the context of being secondhand observations. Additionally, as with any self-report measures utilized in interview or survey methodologies, a lack of objective measure is a natural limitation. However, as mentioned earlier, gathering data within hospice facilities poses obvious ethical concerns that should be carefully considered in future studies while still designing a methodologically rigorous study.

Conclusions

This study succeeded in its aims to corroborate design guidelines for features providing access to nature to patients, staff, and visitors in residential hospice environments as well as to investigate the importance and effectiveness of these features. Such features, including window views, fresh air, daylight, and wildlife features are all highly effective ways in which the users of hospice residences can be given the opportunity to benefit from nature's stress-relieving properties. Given the limitations to this study, future research should build upon these pitfalls to continue the investigation of the effectiveness of facilities in providing these features. The ultimate goal of research such as this is to ensure that future hospice facilities, particularly regarding access to nature, are built consciously, with the needs of users in mind. Ensuring that facilities are built considering these factors will benefit staff and visitor satisfaction and, perhaps most importantly, improve quality of life for patients in their last weeks and guarantee that dignity and respect are conveyed.

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APPENDIX

Appendix A

Interview Script

1. Could you tell me about the role you play at Hospicare?
2. What are the most common ways in which you see residents interact with nature in hospice residences? (*i.e. gazing out window, sitting on deck, visiting gardens, etc...*)
3. How often do residents express a desire to interact with nature?
4. Which architectural features do you believe best support access to nature?
5. What demographic (resident, visitor, staff, etc...) do you think benefits most from nature exposure?
6. What benefits do you believe nature provides to:
 - residents?
 - visitors?
 - staff?
 - volunteers?
7. To what extent do you access nature for respite yourself? Which features do you personally utilize?
8. Could you tell me more about what you think the role of ____ in residential hospice environments is?
 - a. Soothing natural sounds
 - b. Water
 - c. Child-friendly features
 - d. Views from window
 - e. Panoramic viewpoint

Appendix B

Interview Transcripts

Participant 1

I: Hi [redacted]. Good morning, this is Andrea.

P: Hi, Andrea.

I: Thank you for agreeing to talk to me for my research. I am in the department of Design and Environmental Analysis at Cornell University, so the aim of my research is to think about how we can more consciously and better design hospice facilities. My specific area of interest is nature, so I just have some questions pertaining to that.

P: So you've been to ours?

I: Yes I have, a few times actually. And it's beautiful. First off, can you tell me about the role you play at Hospicare specifically?

P: So I am a volunteer. I've been a volunteer for a couple of years, starting after someone dear to me died. In the residence, what sorts of things do you do volunteering? When I first started I took on a visiting shift with a woman who lived out of town with her daughter, just to go by her home because she needed more conversation, more socialization. She had COPD, a respiratory issue. I felt very comfortable. I went over once a week. We usually talked about her bird feeders and what was on those for a while because she loved her birds. And then we would usually just sit wherever she wanted to sit and just talk. Sometimes about what was in the local newspaper, and of course she told me a lot about her family and herself. I just stayed about an hour and it was just pleasant. I did find that when she died, believe it or not, it was sort of a shock to me. It was so strange. When the volunteer coordinator called me and said "your person died," I went "she died?!" I'll never forget it, of course, yeah, that's what they're going to do. But she just didn't seem like she was dying to me. So I learned something. Then I went into the residence. I know how much they need people in there. I do breakfast shift every Monday morning. I've also done substitute shopping. They do two large grocery shops a week. I've done that but it's not my regular thing. So I go in there and check in about 8. And people are just starting to get up—or they're not. And you know it's the kind of thing you want. And I ask people whether they want to eat. Some people are going to eat and some people are not. And some people are not eating at all, and so I'll usually see the nurse and she'll tell me if someone is not eating so I don't intrude in their space. We'll make anything they want. They really believe in that if someone wants whatever, it's fine. So that's what I do. Sometimes I have six people in six rooms eating, and sometimes I'll have two people eating. It depends on how full people are, how sick they are, how far along

they are in the process. I've heard that people are coming in later and spending less time.

I: So you mentioned birdfeeders earlier...

P: Well those were at her house.

I: And I know there are some at the residence as well, correct?

P: Yes, outside every room there is a birdfeeder. So that's one way that residents can interact or at least have visual access to nature. Are there any other common ways that you have seen residents interacting with nature in a similar way? Some people will take a walk with family members or visitors. Someone was there who sat in a wheelchair just by the front door by the flowers. If you go in the summer there are flowers blooming everywhere, flowering trees, and I've seen some people sit outside—but not many in my two years. I've seen people go into the front living room to look out that window. And they clearly do it to see a change. And they view the pond, most rooms have views of the pond. That's a way to see birds coming in. And now you see changes in weather when you're in those rooms and look out. Some people though, do not want their curtains opened. I never understand that because it's so not me. I would want as much light as possible, but for some people it's uncomfortable, so we just do what they ask.

I: Piggybacking off of that, are there any architectural features that you think best support access to nature? You mentioned windows, and the ability to open and close curtains; can you think of any other examples?

P: Well If you have a visitor and you want to go outside, they just don't have patients to go outside alone. So the other night I was there for a book discussion and I thought I would pop in on this woman who I just always look for when I go. She's doing pretty well and I wanted to let her know I would be away for two weeks. I just wanted to see her. And she wanted to go outside, it was nighttime. And those benches right outside the front door are very nice for family and guests to sit, or for the residents to have privacy for themselves, but it's outside. The other thing is, there's an elevated wood walkway with a railing that goes around the building. I've seen patients with family members take small short walks on that. It's stable and if you go back out there, look for that. But most people, the big thing is if they get up and go in their chair for a change, or they go out into the dining and living areas, if they don't want to be in their room they can go out and sit at the round table.

I: You mentioned visitors and family members. I'm also interested in seeing how these facilities can be built better for those stakeholders as well because obviously they're experiencing a great amount of stress.

P: That's very important.

I: Are there ways in which you see visitors and family members utilize nature in a different way than the residents?

P: A lot of people take walks. I know I take a walk after my shift when I'm not ready to jump in my car and do errands or something. I feel reflective and I appreciate that I can walk around the pond or even just sit where there are flowers. And I think family members also do that. They may come and their person is asleep and they utilize the outdoors. There's something that happened fairly recently. I don't know if you saw this plaque right outside the kitchen called Marion's corner. And a woman that was there quite a long time, who I knew, her husband donated the ability for friends and family to have their own refreshment place. So there's a small fridge, a microwave, a sink, and ice bucket, glasses. So people can utilize that without coming in to the main kitchen where they don't have as much privacy, there's people going in and out. And it makes it harder to work for volunteers. Some people prepare meals for their loved ones. I thought that was a very nice donation to help the bereaved families. They can talk to each other and interact. It's not exactly nature, but it was change to the design of their space. We have a cadre of volunteer gardeners. People donate the sunflower seeds for the feeders. In the newsletter, they usually put out a list of what they need. I think the birdfeeders are just so entertaining, because they don't try to fight the squirrels either and so people can see that out their window. They're kind of fun and cheerful. It's not really a somber place. I don't know if it was quiet when you've been there. You know, there's laughter. The staff acts completely normal. It's not somber. I think that the outside is good for the staff as well. There are picnic tables, they can eat lunch out there, the compost. There's a labyrinth outside that I've walked. And there's a vegetable and herb garden. So they use the space that way too.

I: Great. So we're talking about all of these stakeholders that utilize all of these features. Do you think that there's any demographic that might benefit the most from nature exposure or if these groups benefit in different ways?

P: It's hard to quantify how many hours someone looks out the window and what the benefit is. And as a volunteer looking for ways to make connection with the patient, making them breakfast, et cetera, that's part of what we do. We make conversation and we be another person who is not caring for their body. You always try to talk. So we sometimes talk about what's going on outside. I think the staff really loves working there for that reason, that it's very pretty, they can get out during the day. That might be my bias. I never stayed in my office when I was working all day. I think it's very important to get outside and take a walk. I think a lot of employees feel that way. But I think everyone that comes in there benefits. You can pick flowers anytime. When my person was there, I would pick flowers outside and put them in his room because he loved flowers, so I made sure there were always fresh flowers there. I don't know if they tell every visitor that, but there are a lot of vases around.

I: One common design recommendation for hospice facilities is soothing natural sounds; I'm curious what you think of this.

P: Continuous?

I: I suppose so, or even in smaller little bits.

P: When I am there, it's earlier in the day, so it's not primetime for window opening. The philosophy is to go with what the patient wants. We're not directive unless it's what the patient needs. Like it's amazing how many people who put their TVs on. I don't know if they do it for sound or if they're really interested. I don't have a TV, so I find it jarring. But I know it can be comforting. There is also a music therapist. She plays the harp and she comes into people's rooms and asks if she can play for them. When my person was there, I said "he's asleep," but it doesn't matter. They'll hear it. She is a lovely, spiritually minded person.

I: Are there any children ever at the hospice?

P: Yeah, there are.

I: One common design recommendation for hospice gardens is including child-friendly features. What do you think about that?

P: Yeah, definitely they come and I think it's a good idea. I think the sound of children playing is such a great sound. I think it's important to consider the safety of the pond, though. That would be a liability to look at. But I think the water is one of the most important features, I really do. And you see neighbors walking their dogs around the pond. Some staff and volunteers bring their dogs in the residence, but of course it's not imposed on anyone. Did you see the bricks that people have put down in commemoration of their family members?

I: Yes, I have.

P: I really liked that when I was there. It's a great commemoration. They also have a luminary program outside in the summer. It's within view of the patients' windows. I was a little surprised that patients would hear and watch the whole thing. It was really nice because it used horns and echoing over the pond, the paths were lined with the luminaries for their person. It isn't super long; there are a couple of people who speak. It's very tasteful and nice.

I: We've touched on a lot of things, but if there are any takeaway points you think I should write down, feel free to let me know.

P: I think it's a great opportunity because this residence is going to expand to think about those things. Because this is a building already and a utilized garden space, but

they are going to have to expand. I don't know what the plan is. We merged with Cortland County and they're going to need hospice residences, so it's something to think about. I'm sure they have it planned in harmony with the rest of the building. I'm sure that talking to staff, you will get a lot of different opinions than me. I think that everyone coming in is calm and there is a beauty. It doesn't feel clinical, which is exactly what we want. So have fun with your project.

I: Thank you. Thank you so much for speaking with me.

P: Good luck. It was a pleasure talking.

Participant 2

P: Hello

I: Hi there, [redacted].

P: Hi Andrea, how are you?

I: I am well, how about yourself?

P: I'm good. Keeping warm?

I: Yes, trying at least.

P: Oh my goodness; winter is not done with us yet.

I: Yeah. Definitely not.

P: I know. Well I'm all ready to go. I don't want to tie up your time because I can go on and on forever about hospice.

I: It's no problem. I'm excited to hear your insights. Just to preface everything I guess I'll reiterate the goal of my research. I'm interested in the design of hospice facilities and I'm particularly interested in nature. I guess to start off, can you tell me about the role that you play in volunteering at Hospicare.

P: I joined Hospicare as a volunteer. I did not want to seek employment. I have lived that life before. I wanted something easier and nicer, to try to get away from the medical art part of it. So that's kind of a nice side of it. For 30 years, I toiled as a hospital nurse and then for several years after that then went to hospice. I kind of saw how things were progressing in hospitals and how we had to change our thinking and move on with a certain level of care for patients who were not going to do well in hospital treatment and settings like that. So the need for hospice now in our country I feel is so great because of our population aging. Especially where I come from on

Long Island, the baby boomers, the fathers who came home from the war and populated Long Island, we have 2 counties--Nassau and Sussex-- have 8 million people. And the need for inpatient hospice is growing there so much. I think the daily censuses between active hospices there can run into the several hundreds, maybe upwards of a thousand on any given day. And so they are much needed. So that is why that is changing there. Maybe not so much up here but I am hoping that the need for it grows here as time goes on. Our hospice on Long Island where I worked, we opened it. I was the day charge nurse when it opened in November 2004. It was an arm of the visiting nurse service of Sussex County. The visiting nurse service was able to finance it because of the ability to use that income from the visiting nurse patients to open up for hospice patients. So they built an 8 patient inpatient facility. I will send a brochure. You can probably draw from that.

I: Absolutely.

P: You say you are so interested in nature and what we tried to bring into that was that. We had floor-to-ceiling windows. They were paned windows, which we thought was nice. We liked that look. We had window seats that were made out of wood. We left the natural wood, we did not cover them so that nurses and patients could gather and look out and see the outside. We had a sunroom at the very end of our patient care rooms and that was built with actual floor-to-ceiling windows as well. It had a tile that looked like stone, wicker furniture with floral padding. We had some very nice silk plants. There were doors that opened up into the area that we had a fountain in. Right when you would look from the beginning of the hospice right through, you would see that fountain in your direct line of sight. And outside were beautiful shrubs, perennials, we did plant some annuals but we did better with our perennial plantings. We had bistro sets out there, an arbor, and what we did was we put bricks in. Granite bricks, mason bricks in different sizes and dimensions which were put in initially so that as our patients came and as the families saw what they could do, they could honor their families with names on the bricks and we would pop out the bricks that they chose, and we would send that to a mason and he would put the saying or whatever the family wanted. Some were unusual, some were tender and caring. Some were very big and expensive and some were smaller. A lot of them we did for free because the families had no money. And we would place them back in. And over time, so many have accumulated that we have gone past our grass allotment. They did such a beautiful job with it; they have made curvy areas. It is so nice. When people walk out there, I guess they feel funny walking all over these names, but then they stop and they look at them and they connect and they spend so much time looking out there at them. Families come there and place flowers. It is such a nice, welcoming thing for the family; like a small memorial that they just use. Now it's grown after all these years leaps and bounds, so they may have to rethink that. But that is a great architectural element that combines nature and the family into that. It is so beautiful. Where do you come from?

I: I am from Pennsylvania.

P: I'm sure that many hospices incorporate that.

I: Absolutely, yes.

P: I've never been to the residence in Ithaca. One day I'm gonna get over there, but that is a very different place to me. It's more of a residence and I know that there is payment that goes back and forth there. I'm not sure how it works. I know on Long Island, that is not the case. Insurance is taken but we took many people in that had no insurance. And on Long Island, the inpatient hospices are more of an acute care setting. Patients that have profound wound care and who are really in the throes of dying. And really the criteria for those patients down there are probably 4-6 weeks or less of life. So it's not like a residential setting. But what it really is though, it is not a sad place even though you hear that time limit, it is such an uplifting place. Music is such an important thing too. On St. Patrick's day, we had Bose radios but we would play holiday music and the people of Irish heritage people loved that. Music is a big, big part of their history. But there is a brand new hospice that opened up on Long Island. It is in Sussex County. I found out the architect's name; I will send it to you.

I: Thank you, that's very helpful.

P: It is an inpatient facility. They have floor-to-ceiling windows that open and what that happens is, you can move the patient out onto a deck. It's sort of like in a grasslands type of setting. They have nature plantings and wetlands out there, so there is a more natural type of pine barrens which is natural to Suffolk County. They put a lot of perennials and things like that in. I had 2 friends who went to work there and they say it's stunning. Everything is gabled and it just sounds beautiful. It opened about a year and a half ago. I'll send you the name of it and the architect's name. That is probably one of the newest inpatient facilities in probably the tri-state area that has come to be built; I believe with mostly private funding. There is a lot of money out there. They try to bring the nature in. In the place where I used to work, we used a lot of natural wood. We didn't want to use a lot of metal, so we used a lot of wood. We didn't use a lot of window treatments, because we wanted to let the light in, so we used a lot of valences. It was very pretty. And everything that was medical was kind of hidden, which was sort of good, but then we found some problems medically. But we had very expensive German wooden beds; they are clinical beds and everything is hidden underneath, but you can pull everything out, like siderails and things like that. What they did was they brought them into the building, but the beds did not fit through the doorframes after being assembled. That was a huge problem for fire codes. So we got around that by saying "if there ever is a fire, we will take the patient out on the mattress." So the fire department was happy with that. So that is something to think about. And the construction of hospice is always important, to try to conceal the medical aspects. Because the families, they've had enough of all of that. They don't want to see that anymore. So it's important to put the oxygen and the suction equipment in the walls. If they're out on the tables, it's not appealing. So we kind of

decided to hide as much as we could away, but we still, as a medical facility, had to have it. But it was important that the patient didn't have to stare at it.

I: Yes, that makes sense.

P: I have to share with you an interesting thing because, we had just one RN on duty at a time and it could sometimes be very busy when patients were very critically ill. But I hated going into a room that had no one in there. I would try to touch the patient's hand even if they were not conscious, we don't know, but I would just let them know I was there. But the one thing that I felt is not really a good thing is ceiling fans. I've come to say, I don't like ceiling fans. They look nice, they were very expensive I'm sure, but they were always on and you hear the whirring of the motor if it's quiet. I've always wondered if the patient opened their eyes at any time and looked up and saw this thing spinning around; I wonder if they could process that. I've always said to myself I'm not a fan of that. I've always wondered if there's another way of air circulating that didn't require a ceiling fan. But we would constantly troubleshoot things like this. There are so many things we don't know in the art of hospice. I think most hospices rely on volunteers. Like garden clubs. We were located on the North Shore of Long Island. It was a very rich area. They used to call it the Gold Coast. We would put out these invitations to garden clubs, if they would like to come and look at our area and see if they would like to do any planting, or participate in any way. So we would entice them. And then they would come in the Fall with their bales of hay; it was just fantastic. They would love it. They loved to do it for the community and it was great for us because they did it for free. So that is something as a hospice architect--always invite these people in because they love to participate because they love to do that. They love that. They came at Christmastime, Easter, during the summer and it was unbelievable. They would do all this for free. What they would do was take tons of pictures and would put it in their newsletter or something. So they would do all this for us and it was so beautiful every season. It was a community thing. It worked out great. Always pull that community effort in because you always need them. It's really so great public relations for the hospice. It really is, so that was the way to fix the grounds up. Always keep that in mind because in hospice you're always looking to save a penny because the money doesn't go far. You're always trying to save money, When you have garden clubs, it's great. We had a beautiful living area and one of the local appliance stores donated a TV. We also had a beautiful bookcase. We had gone to the library and said "if you ever have a book sale or any old books that you need to get rid of, we would be happy to take that." In 3 weeks we filled up our bookcase. In hospice, the kitchen was always a bone of contention. Many times patients don't eat, but when they do, the aide would cook for them. One person who had a brain tumor and was on steroids would eat a dozen eggs every morning. So we were doing that, but then the families would come in and want to do stuff in the kitchen. We struggled because we wanted to maintain food safety and cleanliness.

I: I know that in hospices, there are many different stakeholders--staff, residents/patients, visitors, family members... Do you see them interacting with nature in different ways, or do you think they get different things out of nature interaction.

P: I think they loved the look of the hospice. They loved to see the ways that we tried to make it look like that. We had the glass and the windows and we did not cover the windows. We had these strange blinds, but we tried to keep them open all the time so the patients could look out and light would come in. Patients always kind of appreciated that. We never kept the blinds shut, unless it was a privacy issue. If we had gone into the room and were doing care, we would not have all the blinds open of course, but when everything was done, we would open it up to the light. We would bring this particular patient in a reclining chair and bring him over the the big window, so he could see out. So we always try to bring the patient, even if they weren't aware of their surroundings, we didn't want to put them in a corner. We're gonna bring you to where there's activity, so we would bring them to the window so they could see what's happening outside. How's the day? Is it sunny? Is it snowing? Even if they were basically unresponsive, it's good to not separate them from that. It's not good for their families to see them separated from their surroundings. Their families need to see them to know that they're not in the corner in a chair all the time. The TV was my biggest thing. I didn't like to have the TV on in the room. We would put chairs around them so that their families could come in and they could have interaction and even if they didn't talk, maybe a family member could say "there's birds outside or something." That's another thing, I told you about the fountain?

I: Yes.

P: It was always nice to have that water source. You need to have a water source, even if it's a pain in the neck to maintain. The water source is always so nice.

I: Do you think it's the visual of the water, or the sound?

P: I think it's everything, the sound the visual, the birds that come in, the wildlife. Not so many of our patients could go outside because they were that ill, rarely some, but we did take them out there with their families if possible. But for the families, we had bistro sets set up, arbors with greenery, and stone benches and so the families or whoever could sit and partake in the nice day. But the water source is really a big deal. And then, of course, when winter came, we had to shut the water source down and cover it up. My younger son would pop in and visit from North Dakota, and he would love to come to hospice. I don't know why; it's not for the young I don't think, but he loved coming there. It was comforting to him for some reason. He didn't want to look in the rooms, but he loved to walk out in the gardens. Is there anything else I can cover for you?

I: Well thank you, you've covered so much for me.

P: Nature is such a big thing in hospice. It is so needed. Catholic Health Services on Long Island has a huge fishtank. So that's something that brings nature in. That would be a killer for anyone to take care of, so they have professional help there. It's quite beautiful and large and people love it. I just love hospice and I love talking about it. I love it. I hope I was helpful to you.

I: You were so helpful, thank you so much.

P: You are very welcome. It was so good talking to you. I know you'll do really, really well. Good luck.

I: Thank you!

P: Take Care.

I: You too, bye now.

Participant 3

P: Hello?

I: Hi there, [redacted]? This is Andrea Fronsman, from Cornell. Thank you so much for agreeing to talk to me.

P: No problem.

I: I'm in the department of Design and Environmental Analysis and I am interested in how we can better and more consciously design hospice facilities and I'm focusing specifically on nature. So, I guess to start off, just to have an understanding of what you do at Hospicare, could you explain that to me?

P: Sure, I'm a volunteer. I've been volunteering there for seven years now. Most of the people I have visited, the majority of them have not been in the residence themselves. But it's not just hospices; it's nursing homes too. But yeah I have sat with several patients at the residence hall. I usually, that's what I do. I visit them there, so the last 24-72 hours for the vigil program, just sitting by the bedside, that sort of thing.

I: Great, just so I kind of know how to focus my questions that's helpful. So what are the most common ways you see hospice patients or residents interacting with nature? Just anything that you have observed.

P: One thing I have found, something I do love about nature for the residents. Not just for the patients but also me. Those huge sliding glass doors out on to the deck, where there are bird feeders and squirrels and chipmunks. If you look out in the distance there's deer. And if I'm sitting with folks...it's kind of the only thing that keeps their

focus sometimes, that movement. But the other thing I have found is how there's a person, she was there temporarily, her family was on vacation, and she was 100, and still quite active, but unfortunately had fairly advanced dementia, so she tended to walk out of the place, and so I used to walk around with her, because that seemed to help, to allow her to move, but the even bigger windows in the great room, there and actually used to catch her attention, watching the clouds. The location of where it is, and she would see things in the clouds, like animals, things like that. And just to have that view in that location, seemed to provide a fair amount of comfort for her. And I think I remember because everyone was worried about her, because they aren't meant to be a dementia care facility. And I could constantly reengage her by pointing to nature out the window. And I felt that was very helpful. When I have been there with people that could still go outside. Having the gardens there, has always been fantastic. The focus gets very close, you know, they are focusing on the bumblebee at the flower right in front of them, things they might not have spent time looking at.

I: Yeah that's great. So do residents or anyone you sit with, perhaps in their home, do they ever express a desire to interact with nature, so for example do you, is that something they express themselves if possible?

P: Um, yeah, thinking of someone who I actually visited originally in her home and was actually helping her write her obituary. And her thing was, nature. And even as a kid, she used to get lost in the woods and go for walks, she was not a very well educated person, or at all widely traveled, and she was making apologies for that to me and I'm trying to reassure her that it's fine but I was trying to get her essence. You go through and you look in the obituary, and they studied this, went to school here, had this job. She was waitress all of her life, but she lived in a place at, up on top of the hill and she had a pond and the geese came through, and she told me constant stories of her tracking the seasons by the nature outside her window. And she was, and this was some months before she was in the facility, she did eventually end up in the residence, by the time she was there, she was not very aware of her surrounding, so she couldn't really take advantage of it out there, but I know it was really important to her. Some other people did this program where, what is it? I think it's the ambulances in town, do a last ride sort of thing, to take people, to take people, depending on what type of equipment they have. But I swear somebody just wanted to go out to the forest. It was an elderly gentleman and his ride was going out in to the forest in the area. And they took him there, so, and I've heard stories from other people, both friends and the hospice nurses, they just want to go to some place that just holds a lot of happy memories, and often times that is a place of nature. There is a level of peace there.

I: Yeah; that's great. So what do you think it is about nature, like you said it could be memories, or it could be kind of an attention-grabbing, distraction sort of thing? It probably varies by person, I suppose.

P: I suspect it does, but I think there's a continuum, depending where folks are. A lot of folks I've sat with aren't tremendously philosophical. But it's where I tend to go

with things. But something between both the simplicity of nature, the reality of nature, and the vastness of it. And the constancy. It's still there, that tree is still outside the window. Where as people who are struggling with ever diminishing quality of life, or different symptoms, or family dynamics. It's impersonal, and yet beautiful, and I think can be, and also if they do, they say they aren't philosophical but they get philosophical at times, just to be part of a nature rhythm and cycle, to put the context there on dying, into the context of the universe, that everything that lives dies. I have to believe there's some. I don't know if comfort is quite the right word but a restfulness to that. There is for me. I'm not dying but when I can't take it anymore, with whatever is coming at me through, social media, television, and news. And I'm not, I don't want to say I'm not a nature lover, but I'm not. I'm not a hiker. I don't swim. But I actually telecommute from home, and I'm on West Hill. And I'm looking out my window right now and I have a view of the lake. It's like looking at a beautiful work of art. You can clear your mind and just take in that visual. That I think is much harder to do if you are looking at the everyday things of life. The mess you need to clean up, the letters you haven't written the photo book that going to make you miss two months work. You just go out there and that impersonality, and yet you have known it all your life. It's has always been around you. I think is a wonderful, something that always interested me, was basically decorating rooms, for people dying. And starting with being located someplace beautiful. To have wonderful views. And even if it's in a facility, or a more urban environment. I think of that idea, the small garden, outside a window. Something where you can have that view. And then for me the decorations is what's meaningful to them, and what visions do they want. I do find people, few, their vision gets closer and closer. So at some point they're not going to see the long views. It's like sitting for someone with several weeks, at the beginning they see the chipmunks, the squirrels, and the birds, and the flowers in the garden. And then at a certain point they aren't looking that far away. But for some portion of the journey I think it's a wonderful thing to have around.

I: Yeah and do you think that there are, non-visual aspects that also are kind of helpful and kind of provide this natural feelings for people? So I'm thinking sounds I know some people mention to me, kind of water sounds or nature sounds. If people like to open their windows. Are there any other kinds of way of experiencing nature that aren't visual, because that's mostly what we think about.

P: To me, smells. Smells can be extremely powerful, but the only thing I've wondered there, is how, which, and it depends when you are talking about on the continuum of dying. The senses begin to shut down. Smells to me immediately throw me back to other times. Like the smell of wood smoke at night. but not in the house, it has to be outside, and it has to be cold and dark. But I have a very powerful connection to being in Italy at some point. And now the problem is depending on what people are dealing with, as a process, as a condition. Um, I'm just trying to think if anything I say, that could get corrupted. Like people going through chemo, their sense of taste might be off, the sense of smell could be off. So it might not quite be available to them. If their circulation is bad, they may seem cold all of the time. Even if the room seems

perfectly warm to them, it's really cranked up for them. So having the window open and having those sounds and smells could be tough. So where are you on the continuum, you're actually taking advantage of hospice care, when you can, like 6 months prior, fine. But if it's the last day or two these probably aren't meaningful things. It's funny though for that, I definitely, the individual takes exception to something. And they just don't want it. But I'm not thinking of that necessarily anything in nature. For me I would not want the sounds of running water, because all my life the sound of water has made me need to pee. So that's just very personal. But um, there was one person who I sat with, and she wasn't really looking out at the world. She was turning more and more inward. But what she wanted in the background was the cooking channel. So you know, go figure, it might be completely insane, for some reason it was comforting to her. And I think, most of the people I've sat with haven't necessarily had a strong connection with, being out and about. Though sometime with animals. I used to have a therapy dog, and she would visit nursing homes with me. And there were people who maybe never had a pet in their life who suddenly found it very comforting.

I: So, we focused mainly on how nature can be beneficial for residents or patients. I am also interested in how, for perhaps volunteers or staff members, or even the families of people who are dying might benefit from nature, because obviously, people in those roles experience a lot of stress.

P: Yeah a lot of burnout a lot of stress. I think that's one place where early on, it might be useful to the patient, but as the patient starts turning inward it's helpful for the family. It often gives them something to talk about. The number of times I've seen families and they have kids in there, and they are talking about the critters running around, down the railing on the decking. But I have to assume, that it's, especial Hospicare with those wonderful gardens, to just go out and take a break, to breathe that air. And certainly when I'm visiting people and spending a lot of time up there I take advantage of it. They are just really amazing gardens. And I always see people, I often see family members wandering the pond, out back. And um, yeah I've always found it restorative. I think other volunteers do. I've never asked the staff but I would believe they too.

I: So I think I've mainly run through my list of questions. Are there any kind of take away points you think I should write down, it would be helpful to hear that.

P: The one thing I have seen, sometime, and this is back to that idea of decorating, especially when you don't have the option of a beautiful outdoors. It's what is the visual in front of them. I think the folks with photographs, and the photographs of nature, some kind of distance, not a close up of a flower. Basically, a vista you could find yourself in, that you could put yourself into with your imagination. If that's not what you are seeing out the window, you can step into that painting or photograph. I've seen folks do that a fair amount. People always put photographs of family members around. I'm sure that's fine, and I'm sure that's valued. At some point in that

process you are going somewhere else, and you are going there all alone. And it can be, whether it's a beautiful work or art, or a photograph of nature or a beautiful place. You can make it into your destination if you want to. And a couple of times I have actually noticed that there were pictures like that in peoples room. Very often people will bring artwork or photography from peoples home. And when people are there longer. The problem is now a days they don't enter into the hospice until the last week or two, they don't get to take the full advantage of the place that really helps them kind of, calm down, come to accept what is going on and leave with a measure of grace. But I think there is huge potential, I think a lot of it would vary by person, but nature would be the one. You could get anybody. Unless someone was only ever, well I don't know I've never worked in a big urban center.

I: Yeah, absolutely, and that's where I'm going with this research eventually. I plan to create a survey that will allow facilities to report on these factors. I'll be able to see if what is important in Ithaca is important elsewhere, like in a big urban center, and if it's effective there. I am very interested to see, because Hospicare in Ithaca is a very exceptional facility

P: It is, now there is a lot of, and across the country there are for-profit and non-for profit hospices. For profit hospices are a little weird. There's, it's all over the map, And I know my first exposure was this hospice here, and talking to people from other hospices I learned just how exceptional this one is. And to not take for granted what they are providing. That being said there are a lot of lovely small non-profit hospices that are just as thoughtful in what they try to provide. The other thing is music, and they do a lot here with music. And that's something that I see them doing in more urban places. Though I must admit, if anybody brought a harp into my room while I was on my deathbed I would kick them out. I never liked harp music, I didn't like it when I was alive and I'm not going to like it when I am dead. I have a playlist that would be meaningful, just not harp music. But I think that's another place that people go that is like nature, it's bigger than them. Especially if they aren't musicians it can be less serious. They might get direct emotional response. Like they hair on the back of your neck sticking up. I have read a lot of stuff where using music with dementia. But both of music and nature, they are places outside of you where you can stand that are wholly impersonal, but by being impersonal it's a comfort.

I: Thank you so much this was really helpful to me.

P: If you have something published I would love to read

I: Thank you, goodbye!

P: Bye now.

Participant 4

P: Hello!

I: Hi there [redacted]? This is Andrea. Thank you so much for agreeing to talk to me, just to preface, I will reiterate what my research is about. I'm in the Department of Design and Environmental Analysis at Cornell

P: I was a graduate, my sister was DEA, part of the family.

I: So I'm sure you are pretty familiar with what we do. I'm interested in hospice design, especially nature. I've been talking to staff, volunteers to try and see all the angles of this topic. Can you tell me the role you play at Hospicare?

P: I started 35 years ago, to see if we could get hospice started. At that point I was a social worker. After I had my my first child, so I volunteered as a kid coordinator, did desk work, office work, then I stopped and had kids and got my massage liscence, for the last 16 years I've been there as a massage therapist.

I: What are the most commons ways in which you see residents interact with nature?

P: Not as much as they used to. When I first started they were coming in earlier in their process of dying. Clearly there, theres a picture that we circulate where we massage outside in one of the gardens. There was more, it seems like the last few years people are coming in so close to dying, I know the windows are wonderful, but I'm not seeing a whole lot of interaction. That doesn't mean it's not great. The birdfeeders in the garden are just wonderful even if they are are unconscious. I think it's very important for the people who are visiting and being and working with them. But I know when I'm there I often find myself staring at the bird feeders. The last time we were watching a fat squirrel, he never stopped eating. That brings a lot of joy; that made us laugh watching him. The bird feeders are wonderful, gazing out across the gardens. There was one man, who had been a good gardener, moved his bed, so he could get a view of the garden flowers. So I think it's incredibly important and respectful to have as much view, smell would be great, because its clean and they totally keep it there, you just don't smell that. It would be really nice to smell flowers. The smell is important. I can't imagine, when you are getting ready to die, to go back to the earth, what better thing than to be seeing it. Knowing it and being a part of that as much as you can. Watching the seasons, watching the rain and snow. Sometimes people like to die in the winter, and not in the spring, they don't have the psychic energy to go through spring again. So watching the snow can be very calming. So people watching the spring it can be energizing. It would be so different for me, and also in nursing homes, to go in and be completely cut off from what's happening outside. I think it's a very isolated way to die.

I: Are there any architectual features, specifically, that you think are really helpful for that?

P: I think they are all important. I think in the natural materials, especially windows and the landscape. The material, get a little limited because you can't violate fire code. They can't have a some features. I know everything has to be up to code. The bedding, certain quilts. When I worked (somewhere else) everything had to be up to a code, The floors had to be easily cleanable. How it's painted and colors can be very calming. I can see doing things with pictures, artwork and nature artwork, woods, streams, paths into the woods. I don't know a whole lot about architecture particularly. Artwork.

I: You keep mentioning the calming aspect of nature, is that the main benefit for residents? or are there other pathways on which nature can help?

P: Cycles, watch the life cycle. The snow, some people don't want spring, some people do. The seasons that we have here, can be very calming, and I think sometimes tumultuous things can make people, feel safe in a weird way. Like when there's a thunderstorm and we are safe in bed. I think sometimes storms, depending on the person and how they are approaching their death. What's calming for some people is not calming for something else. So I think that nature offers, all of that, some might like to be near the end laying there in a rainstorm, and for some people it might make them feel sad.

I: So far, we've focused mainly on patients, but I'm also interested in the way that nature exposure can be helpful for other stakeholders, so volunteers like yourself, staff members, and family members.

P: Family members, it makes a huge difference when you are visiting someone or working with them. When you work all day and you can look out at the rain and snow and sun, it's different from being in the bowels of a hospital where you can go after your shift and you have no idea what happened during the day. I think it's hard to take nature with yourself when you're not seeing any of it. I think what's...when you are coming in to feed someone or bathe someone. You are sharing the environment with them. The outside world with them, even if it's just looking out the window for a while. I think it's a much healthier environment to work in. I think it's very calming for when you are visiting someone you love to be able to sit there and hold hands and look out the window. Instead of staring at...looking at another hospital, you see nothing. For everybody it's a lot harder to not be connected by in seeing, sky or animal or birds or something.

I: So, to what extent do you use nature for respite yourself. I'm sure volunteering there can be emotionally taxing. Do you use these resources? At the facility or at people's homes?

P: Unfortunately, when I go up to volunteer I have to run back to work. There are times I would love to take a walk. There have been times when I have needed to process or separate or grieve, and yes my favorite place to do that is in nature. So, there are definitely times where, I know I love every time when I walk in the front

door I see the garden. I wish I had more time. The first year when I volunteered it was a very busy. I have time to process in my own life all the time. But I can't always do it when I'm leaving there. But I appreciated that it's there and if my time changes there or I go when I am retired or not working I could see myself using it more.

I: Part of my research includes looking at preexisting design guidelines that have been developed for hospice facilities and seeing how important these things actually are in the minds of people who are in hospices frequently. I have a few features that I have been asking people about, if you think this is important or not, anything you have to share. The first is the role of soothing natural sounds. Thoughts?

P: I think its different some people like it some people don't. In general it's part of it. I, at times when I'm really not doing well I will just listen to bird sounds. Are you thinking of putting it in artificially?

I: No, I believe that guideline comes from a healing garden design recommendation, embracing that, perhaps putting a water feature in a garden that gives you a calming sound.

P: That, of course would be wonderful, but in a room in the winter, it would be artificially brought in and for some people that works. I have used it in my massage. I have the sounds of water and ocean, still even though I know it's artificial, it still calms people down, its still something that that's not totally real, but people still love to hear it. I use it in my office, background music too.

I: And, I think we have gone through all of my scripted questions, if you have anything else to share or any take-away points that I should write down?

P: No further comments, good luck.

I: Thanks for speaking to me, if I have anything published I will send it along!

P: Thanks, bye!

I: Bye

Participant 5

I: Hello?

P: Hi, [redacted]?

I: Hi, this is Andrea Fronsman from Cornell. Thank you so much for agreeing to speak with me.

P: Oh, you're welcome!

I: So, were you at the staff meeting where I explained my research?

P: I was.

I: Okay, so I won't go back into too much detail since you probably have a good idea of what I'm doing. I guess to start off, could you tell me what your day-to-day looks like at Hospicare?

P: I am retired from a hospital; I have worked in hospitals, mental health, etc... I work per diem at Hospicare now, so I'm not really there regularly. I work 4-5 shifts a month. And interestingly enough, they are needing per diem nurses at night, so I work mainly in the evening-night. I work around 11PM-7AM, but I have worked dayshifts.

I: What are the most common ways in which you get to see residents interact with nature at Hospicare?

P: When I work days or evenings, I immediately think of our lovely birdfeeders out on the deck. So the sliding doors and windows allow the residents to see the birdfeeders, which I know the residents usually really like. In the summer, there are really lovely potted plants out on the deck as well. Of course, the most wonderful interaction with nature is that they can look out and see that beautiful pond. They often comment on that. Some residents, believe it or not, are not that sick. They are dying, of course, but sometimes people get better when they come. So some people are able to go outside and walk around the pond with their families.

I: How often do residents express a desire to interact with nature?

P: It really depends on the patient. There are some who really do want to go outside, they will say: "Oh, can you take me outside?" and of course we try to accommodate that. And of course there are some who are totally not interested or are too sick. Our particular facility mimics the ability to go outside though; all the windows and sliding glass doors allow people to go out onto the deck. It depends how patients have lived their lives, though, whether or not they like to go outside. And interestingly enough, there are still some residents who smoke. And right now, we have 2, who are fairly young. And they like to go outside to smoke. And we have strict rules about that. They must go out with a family member, but that's why these patients want to go outside. It's a horrible addiction.

I: I guess we have focused mainly on patients so far, but there are obviously other users of the space—such as staff, volunteers, and the people visiting family members or friends. Do you have anything to say about any of those groups?

P: Sure. The first thing is family members or friends are allowed to take residents out. And many times residents are so looking forward to that. Not just to go for a walk, but to actually take them out to dinner or somewhere like that. I can't really remember any family or friends taking anyone out to the park or something, but I think that the Hospicare residence in Ithaca attracts folks who are maybe more involved with some programs such as birdwatching, hiking. Ithaca does have a lot of that. I will just throw something out—I only work at the residence as a per diem nurse. And when people hear that, they have a respect for that and comment "Oh, that must be difficult work." Much moreso than when I worked at a hospital. But it is a really good place to work and we are all passionate about what we do.

I: So in the residence, do you witness family members using nature by themselves for contemplation?

P: Yes, that does happen. It's encouraged. If a family member just wants to take a break and get away.

I: And on this topic of respite, as a staff member, I know that staff respite is usually considered pretty important. Can you reflect on the role that nature might play in that?

P: Personally, I think it should happen. And unfortunately it doesn't. I think that retreats, time off, are very difficult. It's important to re-energize and get your feet back on the ground. And your topic on nature—I found that when I worked full time just to go up to Taughannock Falls and have a cookout, take a walk, whatever.... Being outside in nature is so healing. But it is interesting—some people are just not outdoorsy. Folks who are active in nature just seem healthier to me.

I: One thing I'm interested in is specific architectural or landscape features—do you think that soothing natural sound plays a role?

P: I think it's very important. Birds chirping, the sound of water, are all healing in my opinion.

I: How about features allowing children's play?

P: I think that many residents who have grandchildren so look forward to that. It's usually very healing to have children come in—people really light up when they see children. I think having even a swing set in the garden could bring back a positive memory. Now, I don't think that children should be allowed to be too loud for too long. Older, sick people tire so easily, so it has to be very limited. It depends on the resident—if they resident is actively dying, it might not be appropriate depending on the age of the child. I am also remembering a patient who had to move out of her apartment. She had a lot of her dolls and she brought them with her to the residence because she wanted to give them away to her grandchildren. That brought her so much joy to pass along her childhood toys on.

I: Well this has been very informative, thank you! I'm through all of my scripted questions, but do you have any takeaway points you think I should write down?

P: Not off the top of my head, but don't hesitate to call me back if you have any more questions.

I: Thank you so much, your perspective is so appreciated! It's great to hear from a nurse at Hospicare.

P: Well good luck to you, have a great day.

I: Thank you, you as well!

Participant 6

I: I have a list of questions although they're kind of more geared towards volunteers so I'll just see how relevant my questions are. So my first question so I know how to tailor my questions is what is your day-to-day like when you're here. How much interaction do you have with the residents?

P: I'm the medical director so mostly my job is to be a support and resource for the nurses. And supervise care plans, and be a troubleshooter for them when they have issues that come up with their patients. I only see the residence patients when there's an issue that needs to be resolved because as the medical director, although I'm a doctor, I'm actually not the personal doctor of the patients upstairs. Most of them have their own doctor. And the nurses interact with those doctors. If they want me to look at a problem, like listen to somebody's lungs or look at a rash, I'll go up and do that. Occasionally we get patients who come onto our service who don't have a doctor. They're either from out of county or out of state or they just haven't gone to the doctor until their tumor was dragging on the ground and then finally came in but don't really have anybody. Then I become their tending physician and then I see them a lot more. Then I have to see people for what we call face to face evaluations. If people had actually been on the hospice service for six months, which is supposed to be their life expectancy and they're still alive after 6 months, then the medical director needs to see them every two months to evaluate them and make sure they're still appropriate for hospice services.

I: My area of interest is design and nature specifically. The reason I chose this site is because I visited for class this time last year and I was very struck by the beauty of the surrounding area and even the facility has a lot of really great features built in. I know that you mentioned that your mother was a medical facility planner

P: Yeah my mother was a medical facility planner and architect and she worked in boston. She actually designed a lot of research labs in hospitals... additions and things like that.

I: Do you have anything to say about the role that nature might play. Particularly with stress relief and things like that in this sort of facility?

P: I don't know if you've read the book "being mortal" by (name 3:45) Its a really good book and he actually addresses that because there actually is a physician and for some reason I'm blocking on his name right now and he lives here in Ithaca and he might be an interesting resource for you some time. A physician who began his career after his residency looking at nursing homes and actually became the director of a nursing home and noticed that as soon as he walked into a nursing home he felt depressed and he said how is it possible to be a resident in this nursing home without being depressed. So he made a lot of modifications there. He introduced plants, he introduced animals, he finally introduced a daycare center into the nursing home. and one of the things that he found that I though was very interesting was that if you give an nursing home resident a plant, a small potted plant to take care of, that that care for that plant becomes a critical element in their life and gives them something to look forward to. And he actually had a lot of success rates with people feeling motivated to continue to survive and they actually left the nursing home and were able to live independently because they weren't so depressed and feeling so depressed. So he invented something called the Green Home. Its part of, I think its called, The Eden Alternative. He's got this whole scheme for how we can enhance nursing home- well he doesn't even call them nursing homes, he calls them green homes. but places where seniors can live that are not depressing and that combine an approach to having nature in the home ad multi-generational human beings in the home too. Its a really nice idea, and i think its definitely true that environments make such a big difference in how people feel. I think that I personally really like the architecture of Frank Lloyd Wright. I love the way that he brings nature inside by trying to minimize the obstacles between the inside outside. I think that there's a place for that, and I think one of the reasons that hospitals are so sad is because its difficult to even get a window in a hospital.

I: Yes Its very institutional. I'm interested in all the various perspectives of people that use the facility as well, so in addition to patients I'm interested in how staff and visitors to patients or residents in this case also benefit. I would like to think it would benefit everyone to have enhanced access to nature. Do you have anything to say one that?

P: I think that one of the reasons that people like this facility so much and want to bring their relatives here is because they love the view of the pond and they love the gardens and thats sort of a priority here. I think we all appreciate the gardens a lot. I've noticed that ina lot of planning when they design a facility, they usually give the patients and their families the outside rooms that look out over nature and especially in hospitals, nursing stations are usually in the very center of the hospital with no access

to even daylight, much less a view. So I don't know if the nurses get as much benefit as the patients do, but the patients certainly appreciate looking out that window. I think that would be a great way to spend your last weeks or months of life.

I: Are there any specific features, either here or in other places, architectural features that you think are particularly important?

P: I think that actually bringing plants indoors is a good thing for people. Its really nice to have plants indoors. As long as you have staff to take care of them. Sometimes we have problem with our plants wilting because nobody has time to water them.

I: Exactly, thats the challenge. And then dusting them and things like that as well...

P: And then I think also its really nice to have communal space. Which is comfortable living space and you'll notice upstairs we have both that great room where our residents can have parties and some of them do have birthday parties and anniversary parties here. But there's also that smaller sitting area which is more like a tiny living room and its right next to a kitchen area where people can make themselves tea and coffee. I think that's a really nice space too and its got a nice view again out of the front of the building where they've got a fish pond and a terrace and nice flowers. Its interesting they just brought this new renovation design to us fairly recently within the past month. This is the current facility right here and they've been talking about adding this on. They are actually not going to increase the number of beds too dramatically. I think this is what they originally had planned and it was much too expensive. We don't have 8 million dollars. So I think they modified it to this. this is the current facility and this is the addition. What they're doing is, you've probably seen our residents right now, the rooms share a bathroom, which is not very good. Room 1 & 2 share a bathroom, rooms 3 & 4 share a bathroom, 5 & 6.... so a lot of people complain about that and it probably is not very good. We have patients who have MRSA, resistant staff infections, so what they have planned is to actually not increase the number of rooms so much but to make them much bigger and more private and to give them, each room would be much larger and would have its own bath and they are actually suggesting that they have some sort of living space for families. And we often do have families, this is downstairs. The people who are giving this money are really wanting it to be for patient use and not staff use. We can't expand our offices, so we can just do mechanical things like that. Here's a picture of what they have planned for a typical room. The options are size 1,2 & 3. I actually think this is a little excessive, but they have a double bed, a couch here that turns into a double bed for guests. They've got the patient bed over here so families can stay here comfortably. Each person would have their own kitchenette and a very big handicapped accessible bathroom, which is nice. I think that that's actually much too space, it really seems excessive so I think that it would be probably just as good to use size 2 & 3, but we're just in the beginning stages in planning this and I hope to be on the building committee because I like to look at different plans and think about those kinds of things. But they're trying to as you can see continue the idea of having a deck outside.

I don't know if other people have mentioned that to you, but I think its important to have the deck, a lot of people want to leave their room and sit outside but actually don't have the ability to get out of the building that easily. so being able to just get that little piece of nature overlooking the back is really nice for people. I also think they want to make this a family kitchen area. I'm actually more in favor of making this a nursing station because they're plan right now has the nursing station way at the end of the (inaudible 13:00). The nurses should be central to what's going on here. Here's upstairs see they have the nursing station down here, which is next to the kitchen

I: Yeah that's somewhat far to walk.

P: Yeah exactly so a nurse who is here and there's a patient in distress down here, that's a little tough. So I think this would be a better nursing station, even this space here could be made into one. As you can see there is no window space for the nurses.

I: It's interesting to see the process in action.

P: It is! If you're interested in the building committee I'm sure that they wouldn't be averse to sharing their ideas.

I: I don't want to take up too much of your time because I get the impression being here that you're very in demand! Thank you!

P: My pleasure.

Participant 7

I: My research focuses on architecture of hospice facilities, so I've been asking people about their experience working in and around hospice facilities, either on a volunteer basis or otherwise, so to start off could you tell me about the role that you play at Hospicare?

P: What department are you in?

I: I'm in DEA. I'm interested in the design of hospice facilities, so I've been speaking to people about their experiences volunteering at Hospicare, specifically my focus is on how we can design nature into the environment. To start off could you tell me about what role you play at Hospicare.

P: I am a volunteer and play all different kinds of roles. I make breakfast for the residents on Sunday morning.

I: My first question pertaining to how residents interact with nature is if you see residents do so, and if so what are the most common ways you see that occur?

P: I have heard patients say often that they enjoy looking out the window, especially, talking about birds. Have you visited the residence?

I: Yes I have.

P: So you know that there are bird feeders at most of the windows. Probably all the windows, and the bird are pretty active. They come and use the birdfeeders, and the squirrels come and the chipmunks come, and quite a few of the residents are pretty aware and get a lot of satisfaction out of watching what goes on.

I: I think every person I've talked to has mentioned the wildlife, so that's pretty great. Do you ever see residents express a desire to either go outside, or I don't know if you ever sit with the residents, sometimes people talk about how they do that. I guess if you're not in their rooms, you don't know if they want to go out on the deck. but can you think of any times when someone has expressed that want to go outside?

P: I don't know if anybody has ever said to me could you take me outside. I know that people go outside to smoke, but its important to know that's part of what goes on. I know that people's families take them either on the deck or often you'll see families either right outside, or there are different levels you can go and sit on a bench that is right near the doors, or the one that's a little further out, and then some people go out to the (inaudible 5:25) all the way around to the left and I've never taken anyone but you'll often see families out there.

I: That's a good segue to another question. I'm interested also in not just the way patients use nature, but the families as well. I know that being there is a stressful experience. How often do you see family members perhaps using the garden or going down to the pond for a breather?

P: You definitely see it. There's only six rooms and very often they're not all being used, so its not like you see crowds of people out there, but you definitely see people there and you also hear people saying how beautiful it is. My impression is that almost everyone that enters the space has experienced what was outside. So I hear family members saying how beautiful it is and how much they appreciate it. And you'll see people by the pond, and walking. I think its pretty well used. As I said the population is very variable so there may only be one person there may be six people. There also used to be a childrens program that used the space. I don't know how long ago that was, but it used to be used for I think pretty young kids as a space for a summer program.

I: One common design recommendation in healing gardens in hospice facilities is child-friendly features and I find that very interesting. I've spoken to people who said that it is beneficial for some residents to have that energy around at least for short amount of time. Obviously not the the point that its exhausting.

P: I don't think that they would have been in the facility at all, but its a very big space and they would be using the space. Have you spoken to the gardener?

I: No I have not!

P: Her first name is [redacted], I'm embarrassed that I can't remember her last name, but if you call the residence they'll give you her full name. She used to be more involved, She's told me stories about how they have a vegetable garden and they used to make soup with the vegetables and so on. And she's a very interesting person, I think she's a sculptor, so I highly recommend talking to her.

I: Thank you I will do that! So I'm also interested in staff and volunteers as well. especially for staff who are there all day every day, I'm sure that it can be taxing. I don't know how much you interact with staff or if you see the ways that they might use nature for respite. Or if you yourself or other volunteers ever go on a walk after your shifts?

P: I do, especially in the summer, I like gardening myself, I know that this hospice is one of the top hospices, and in fact there was a woman who came by one day who said she had worked in long island hospice, a very good place, I think she was a high up administrative person, and she just said she was so impressed by everything about this organization. ONe of the things I often do is I like to take the compost out, because I just think (inaudible 11:20) the idea of recycling and (inaudible 11:25) its like a very nice ritual for me to do. And its something that is so different when you're coming on sunday morning, to when some people work seven straight days because that's how the schedules are. I know for me being able to drive up to the residence house (?inaudible 11:50) part of what makes it something that I can keep doing is partly what its like to enter the space. Its so beautiful, especially on a sunday morning, even in the snow its gorgeous, breathtakingly beautiful, and it really sets you up to be able to do work. Its a beautiful garden so I like to go out and see whats blooming and help take care of it. You can see the gardener has done a lot of thinking about how things are placed. I think its so moving that they have a gardener. So I definitely take advantage of it and I know there are some other nurses who are interested in landscaping. I would say unfortunately I think its a very hard job. For people who are working, they dont really stay. Its the kind of thing where I think its hard for people to be able to be open to that. I just know the people who are there sunday morning, who I really enjoy working with, its a hard job and I'm very priviledged to be able to come just on sunday mornings and that I don't get the full range of the experience.

I: So I think I'm at the end of my scripted questions. I'm usually short on questions when I speak to people, I think because going into this research, I didn't know what I would get from interviewing people but everyone's just been so positive about my research and about nature in general. I haven't heard someone who said I don't think nature's important. I don't know if you have any takeaway points I should have, if not no pressure...

P: The only thing that i would say is talk to [redacted]. She's been working in the garden for a very long time. And She has seen her job evolve and she also a great person. So I think that you would be interested. I didn't mention that I often take flowers. You've probably seen the residence in the summer and spring.

I: Yeah I've seen it in the springtime.

P: One of the things that volunteers or anyone can do is collect flowers and put them around, and actually I forgot about this, sometimes people will ask you for certain flowers. If you ask if someone wants a bouquet they'll often say they want something in particular. sometimes people don't realize that they can request something, so it's so nice to be able to say I can get you a fresh bouquet!

I: That's wonderful, thanks for mentioning that

P: And you can freshen up someone's flowers and it's very nice.

I: And you mentioned walking into the space and you get- I mean the front room itself, let alone the view is just the cherry on top. And that's actually why i decided to do this research, I have a personal link as well, but visiting the space with a class I saw what great access to nature there is there.

P: It's a very beautiful thing! They also have events. I think that people have, if you're mourning someone, even if you've never had a connection to hospice, but you may know about this, but anyone from the community can come to these events to a group mourning experience. And It can be held outdoors and they use the space for this one event where they put the candles... is it illumination?

I: Oh, the luminaria.

P: Yeah, that's a very effective way for people to mourn in this very gorgeous way. The setting really holds people in a very nice way.

I: Well thank you so much for agreeing to talk to me. You're probably one of the last people I will interview, and I'm hoping to analyze all of my interviews and create a survey to send out to other hospices. For one reason I want to see perhaps in urban settings if some of these answers are the same. Ithaca is a very different place than other places, so I want to see whether there is any consensus. Another thing I want to see is how well are hospices at providing these experiences. I think that Hospicare is doing a great job, but I'm also curious, in say the urban example, if those facilities need to invest more to ensure that residents can have some sort of access to nature.

P: Ithaca is very unusual in that they get a ton of donations. I don't know the statistics, but I am guessing that the percent of donations is very high compared to those other

places in material and in money. And then they have this beautiful space, so they have an unfair advantage. TO hire a gardener like this woman in an urban space would probably cost seven times as much! It's unfortunate that this is the ideal setting and other places don't have the same advantage. I guess I've made up my mind what the results are, but I would be interested in seeing what they actually are.

I: If I publish my research, I will pass it along so that everyone who participated can see what it went towards.

P: I would encourage you again to talk to the gardener. She's probably done research herself in some way.

I: I'm actually going to the residence soon so I will speak to the receptionist and try to get her name. Thank you so much for recommending her, she sounds like a good resource. Thank you so much you were very helpful. Have a good night!

Participant 8

I: Thank you for agreeing to speak with me! Like I mentioned when I emailed, I've been interviewing volunteers and staff members at Hospicare. My area of research is the design of the residence and similar facilities. I'm interested in gaining insights from all sorts of people who work in and around hospice. Could you tell to me about the role that you play at hospicare?

P: I came into Hospicare after an invitation from [redacted] who is the director of a music group there. I'd worked with her at choir under her leadership and she thought I might be interested in joining this select group of singers who would sing for patients. So, I underwent the training as a volunteer which was required. So I came in as a musician. At that time, it was just 7 or 8 of us, and so we would go to patient rooms 3 or 4 at a time upon request and sing to people or be helpful and sing in a very specific style that she trained us to do. So that was my introduction as a volunteer. I then realized I was also interested in companionship with patients so they would assign me a particular patient from time to time; I would visit usually once weekly. Also respite care so I would stay with a patient usually in the home and that way a caregiver could go out and run errands. So that's been basically the things I have done there.

I: Wonderful! So are there any common ways that you have seen the people that you've been a companion to interacting with nature?

P: That's actually something I thought about when I saw that was your particular interest. That's also my interest. I have a master's degree in landscape architecture. I've done a lot out of outdoor design. In design terms I'm also very interested in nature. What I found specifically with patients, the ones that I have seen, I've only had one that had really been drawn to nature. So one patient would want to go outside on the

porch with me when the weather was good and we would spend most of that time looking at the horizon, there was a good view from his porch. We would look at flowers coming up, maybe some tomatoes coming up on vines on the porch. He would talk about things he had done on the property in the past. He was very engaged with the natural. Almost everybody else was really not interested in looking out the window. I can only think of one that had a dog in the room and they were very interested in connecting with the animal but not the outdoors.

I: That's a good point. I think it is true that many residents and people who are at home receiving hospice care aren't necessarily able to enjoy nature. But I'm also interested in how staff members, volunteers, and family members interact with nature, and how the facility can be built with all those users in mind. So I wonder if you've had any interactions with the other user groups?

P: I think there's quite a lot of that. One of the most beautiful events is the illumination which you've probably heard about. They're typically outdoors and in the fall. Luminaries are placed with names of people in memorial, like along the pathways in the gardens and so families and community members and volunteers and like my husband comes with me and we stroll along the paths and look at the luminaries and the pond. I think the people of Ithaca are extremely attached to Hospicare partly because it's so beautifully designed with nature included and a lot of variety of plant materials throughout the year. Every time you go out there you'll see deer running across the frozen pond in the middle of the winter. So we go and rehearse for our musical groups, I really like sitting where I can look out of the windows. I watch the birds I look at the pond, I enjoy the changing of the seasons. I go early and stroll along the paths. I see other people doing that too. I haven't talked to the staff about that aspect, but I know that I see people very enthusiastically engaging with the little locations that are set up for singers. There are places where singers can group and as a designer I would probably think more carefully about creating spaces for singers and audiences because there are a number of group activities that can occur there.

I: Your personal experiences are very helpful to me. It's great to speak with someone who speaks the language of design.

P: I could go on and on about that. I think about that a lot. But I think those outdoor events are when it's particularly-- like there's never enough seating for events and like having more places for people to sit outdoors, in the gardens would be a nice thing because you can be very contemplative. And spaces for larger family groups; maybe there could be protective circular enclosing areas for family groups to have some privacy to be in nature and be able to think and bond with each other. That'd be really pretty.

I: You mentioned that you were drawn to Hospicare because it is very beautifully designed and that's also why I decided to conduct my research there. What do you think it is about that space that they did correctly?

P: Well, the multiseasonal appeal. One of the things that is particularly effective is the white birch trees because they're dramatic and in any season they are very evocative. They evoke certain things—the culture of the northeast, or storytelling of the past. Birch trees have a lot of significance in our culture and Native American culture as well. The pond, having water... Also the view, having wild animals being attracted just being in the area that they're in has habitat available for the deer and probably other animals that come in that I don't normally see. So having it on the edge of town is a good thing if you live in a natural area. The feeders of course draw in the birds and squirrels. That's what people want. Drawing wildlife in is really a good thing for the patients population and the family population. Also the variety of vegetation—the variety of levels. Topography is a landscape designer's best friend. You can just do lots and lots of things. Do you have a design background by the way?

I: I'm in the Department of Design and Environmental Analysis, yes.

P: There are some other things that are very good. Having the trail that goes completely around is very good, so people don't have to go on a trail and then come back on the same trail. Though that's two different journeys I realize but it's nice that it goes all the way around the property. It's nice that it's not too steep and it's accessible generally speaking. Having a mixture of hardscape and softscape. Hardscape being the stonework and not having it look fake. So having natural materials, like stone and not just bricks and concrete. Actually a handcrafted feel to it is very important to most designs. Particularly when you want to be sensitive to people that are very vulnerable, I think that having a handcrafted nature is very important because it tends to remove that institutional smell that permeates not just to the nose. That's something that's present at Hospicare. The variety of plants that are blooming at different times it's really nice. And having it well kept is just the (inaudible 15:40) having the volunteers that you can keep it looking really good. People with good design sense for when materials as well to keep that rotating.

I: Thank you so much, this is really helpful for me! I've gone through all of my scripted questions and I don't want to keep you.

P: I really appreciate that there are people out there doing this because I suffered with both of my parents through institutional alzheimers and this was in facilities both in Arizona and here in Ithaca. My mother was in a care facility in Tucson and she came to Ithaca and they had exactly the same floorplan and same building design and same interior and everything. Which in one way was comforting for her, but I call that "plop design" where a large company will just plop things down all over the country without any sense of sight. So I think that that's a big mistake to try to bring big business to things like these care facilities, individual attention and creativity and handcraftedness are incredibly important to people's well-being and healing, you know healing of the heart that occurs.

I: I couldn't agree more. So my next steps with this research: You're probably one of the last people I'll be interviewing and next I'll be developing a survey which will hopefully serve two purposes, I'm hoping to distribute it nationally to hospice staff. I want to see if all of the things that I've identified speaking to people at Hospicare are important everywhere else. You mentioned how landscapes can be different. I'm also interested in differences between rural and urban, what people at urban hospices think about all of these things and if they think its important because as well all know Ithaca is a special type of place. So that's one part of it. Then another part is that I'm hoping the survey will allow hospices to see how well their designs are doing at providing these features. I know in the case of Hospicare they've been talking about doing an addition. Or facilities who are going to be renovating or doing new construction, its helpful to get a gauge of how well the current facility is providing certain features. That's where I'm going with all of this, so your help was very appreciated.

P: I hope that this will lead to better design. Even in urban environments, which tuscon kind of was, it's important to have the feel of peace for families who are under a lot of stress, so anything that can be designed to create that facade of a front porch to make it feel like someone put a lot of thought and care into the design and put whatever elements of nature that are available in.

I: The survey will allow me to do quantitative analysis and figure out which features people consider are at a top priority or less of a priority, because I'm sure you know that at the end of the day, cost saving is a very important part for people building facilities.

P: In that case is that that's gonna be very very site-specific, so I would actually stay away from talking about actual features, but just maybe talking about the qualities, and how to create the qualities that nature can bring and look at your facility and say how can I in this location, or this facility, because urban vs rural are very different in terms of what features you have access to create. The qualities that people derive from nature and then look at "ok so how can I bring that to my facility?" might be a little different, when you're directing it.

I: Well thank you so much! You've been very insightful. If I publish I'll send it to [redacted] and see if he'll send it out to people who participated.

P: I'd love to see what you come up with.

Participant 9

I: Hi [redacted].

P: Hi there.

I: This is Andrea from Cornell. So, I've been speaking to volunteers and staff members at Hospicare. To summarize my research, I am interested in nature and how we can incorporate it into hospice environments. So I know how to tailor my questions, I'll start off by asking what is the role you play at Hospicare?

P: I do massage there

I: Do you go to the residence to do that, or do you go to their homes or elsewhere?

P: I've done both, but for the most part I go to the Hospicare residence.

I: Like I said, I'm interested in nature, is that something that you ever try to incorporate into your massage therapy?

P: It's so funny that you called because I just made a declaration that my private practice will now incorporate massage in nature. In terms of specifically working with hospice, the patients are pretty much in their beds. The nature component is that we get them to look out their windows, and it's a very beautiful area.

I: In your private practice you mentioned incorporating nature elements. How would you do that? Would you use sound? Or perhaps smell?

P: Yeah, what I like to do, my favorite way is doing massage by running water. I've done massage in Costa Rica a lot of times on the beach or outdoors on the ground so I can be barefoot and being around real nature sounds rather than a sound machine which is great, but not the same thing.

I: What do you think of the Hospicare residence? What do you think of that building, and what do you think it does right in terms of incorporating nature?

P: I love the entrance; it has a lot of windows. Even though most do not go out and walk, or possibly not get outside, the very fact that it is in nature in a natural setting, has an effect on a lot of the people there. They'll watch the birds they'll watch the squirrels running around. It seems to create a sense of peacefulness.

I: Do you ever take a walk around there yourself?

P: I have. Sometimes I do. It's a good idea to build it into the experience of being there, because sometimes when I do massage I get emotionally triggered. I'm married and if one of the patients... like one I massaged previously, his wife was snuggled up against him while he's dying... It's really hard. I sometimes get shattered in my heart. It's beautiful but also very sad, very sad...

I: Part of my research is that I'm interested in not only how nature can provide stress relief to patients, but also for the family members, for the visitors and for the staff who

have to experience that environment every day. So its great that you utilize the nature yourself to take a breather. All of my scripted questions I've gone through, so if you have any takeaways that you want to pass on to me, feel free, but other than that you've been very helpful in my research.

P: Yeah It sounds fascinating that you're doing that and I'm very grateful that your concerned and interested about this. I think its important that patients get to see the cycles of time. But to be around that helps them in the dying process. I met with this harpist, there's this lady who plays the harp and we met up once and did massage and harp and the window was open and it was summer. Honestly it was like heaven. I was like "This is heaven!" The harp, the massage therapist, maybe like chocolate that would be great but otherwise, heaven. I would like to plug in that one thing that I know about hospice and the food that they serve there, it would be really wonderful and I know that when people are dying they get to choose whatever they want to eat. How extraordinary would it be to have flowers growing moreso at each place outside as well as like vegetables and then there's a sense of light that's happening all around that then the nurses could have fresh salad greens both for themselves and for patients and that there's an element within the residence that has like sprouts growing or just a little more green, more greenery, different flowers, like things are alive inside.

I: That's a great recommendation. I think that's beautiful and poignant imagery, you know bringing life into a hospice facility. Well, thank you so much for your time. I really appreciate it.

P: No problem. Bye.

I: Goodbye.

Appendix C

Survey

The purpose of this survey is to gain information regarding the physical environment in hospice facilities. You have been asked to participate because of your experience in hospice facilities. The survey should take approximately 15 minutes. Three (3) respondents will be randomly selected to receive \$50 Amazon gift cards. If you are interested in the drawing for a gift card, please provide your email contact information at the end of the survey. Your participation will remain confidential. Please review the following informed consent document prior to taking this survey.

Project Title: Exploring Dimensions of Nature in Hospice Design

Principal Investigator: Andrea Fronsman
Department of Design & Environmental Analysis
aef233@cornell.edu

Study Topic

The researchers intend to develop a survey tool for evaluating hospice environments, specifically pertaining to features providing access to nature. The survey will aid in the development of design guidelines in the construction of future hospice facilities.

What we will ask you to do

We will ask you to participate in a survey. You have been asked to participate because of your experience in hospice environments. The majority of the questions will be specific but you will have the ability to make additional comments, if desired. Your identity will remain confidential. The survey will take approximately 15 minutes.

Risks and Discomforts

We do not anticipate any risks associated with participating in this research.

Benefits

There are no direct benefits to the participants. Information from this study may indirectly benefit staff, patients, and visitors in residential hospice environments by providing guidelines regarding proper design of these facilities.

Payment for Participation

There is no payment for participating in this study, however three (3) individuals will be randomly selected to receive \$50 gift certificates.

Privacy/Confidentiality

We anticipate that your participation in this survey presents no greater risk to privacy than everyday use of the internet. Basic demographic information will be gathered, but your answers will not be connected to your name or email address in any way.

Taking part is voluntary.

Your participation is voluntary. You may refuse to participate before the study begins, discontinue at any time, or skip any questions that may make you feel uncomfortable, with no penalty to you.

If you have questions...

The primary researcher conducting this study is Andrea Fronsman, a student at Cornell University. Please ask any questions you may have now. If you have questions later, you may contact Andrea Fronsman at aef233@cornell.edu. If you have any questions or concerns regarding your rights as a participant in this study, you may contact the Institutional Review Board [IRB] for Human Participants at (607) 255-6182 or access their website at <http://www.irb.cornell.edu>. You may also report your concerns or complaints anonymously through Ethicspoint online at <http://www.hotline.cornell.edu> or by calling toll-free at 1(866) 293-3077. Ethicspoint is an independent organization that serves as a liaison between Cornell University and the person bringing the complaint so that anonymity can be ensured.

Please feel free to print this form for your records.

D1. What is your role in your current hospice facility?

- ☐ Staff primarily interacting with residents (e.g. healthcare provider) (1)
- ☐ Staff not primarily interacting with residents (e.g. administration) (2)
- ☐ Volunteer (3)
- ☐ Other (4) _____

D2. How many years have you worked in the hospice field?

D3. How many years have you worked in your current facility?

D4. Which of the following best describes the surrounding environment of your hospice facility?

- ☐ Rural (1)
- ☐ Suburban (2)
- ☐ Urban (3)

D5. How many beds does your facility have?

D6. Is your current facility physically attached or next door to a general hospital?

- ☐ Yes (1)
- ☐ No (2)

The following questions address the importance and effectiveness of design features in the physical environment of hospice facilities. Importance refers to your assessment of how critical these features are to the support of patients, staff, or families. Effectiveness refers to your assessment of how well your current facility incorporated these features in the physical environment.

G1. Please rate the following general design features in terms of their importance to the patients in hospice residences:

	Completely unimportant (1)	Very unimportant (2)	Somewhat unimportant (3)	Neither unimportant nor important (4)	Somewhat important (5)	Very important (6)	Completely important (7)
1. Soothing natural sounds (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Water features (e.g. a fountain) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Panoramic viewpoint (e.g. a wide view of the surrounding landscape) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Natural materials (e.g. wood, stone, etc...) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Features memorializing former residents (e.g. engraved bricks in a garden) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

G2. Please rate the following general design features in terms of their importance to the staff in hospice residences:

	Completely unimportant (1)	Very unimportant (2)	Somewhat unimportant (3)	Neither unimportant nor important (4)	Somewhat important (5)	Very important (6)	Completely important (7)
1. Soothing natural sounds (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Water features (e.g. a fountain) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Panoramic viewpoint (e.g. a wide view of the surrounding landscape) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Natural materials (e.g. wood, stone, etc...) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Features memorializing former residents (e.g. engraved bricks in a garden) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

G3. Please rate the following general design features in terms of their importance to the visitors in hospice residences:

	Completely unimportant (1)	Very unimportant (2)	Somewhat unimportant (3)	Neither unimportant nor important (4)	Somewhat important (5)	Very important (6)	Completely important (7)
1. Soothing natural sounds (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Water features (e.g. a fountain) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Panoramic viewpoint (e.g. a wide view of the surrounding landscape) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Natural materials (e.g. wood, stone, etc...) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Features memorializing former residents (e.g. engraved bricks in a garden) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

G4. How effective is your current facility in providing the following general design features?

	Completely ineffective (1)	Very ineffective (2)	Somewhat ineffective (3)	Neither ineffective nor effective (4)	Somewhat effective (5)	Very effective (6)	Completely effective (7)
1. Soothing natural sounds (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Water features (e.g. a fountain) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Panoramic viewpoint (e.g. a wide view of the surrounding landscape) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Natural materials (e.g. wood, stone, etc...) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Features memorializing former residents (e.g. engraved bricks in a garden) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Please rate the following indoor design features in terms of their importance to the patients in hospice residences:

	Completely unimportant (1)	Very unimportant (2)	Somewhat unimportant (3)	Neither unimportant nor important (4)	Somewhat important (5)	Very important (6)	Completely important (7)
1. View from a window (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Plentiful daylight (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Fresh air (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Nature artwork (e.g. landscape paintings, photographs , etc...) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Indoor plants (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Please rate the following indoor design features in terms of their importance to the staff in hospice residences:

	Completely unimportant (1)	Very unimportant (2)	Somewhat unimportant (3)	Neither unimportant nor important (4)	Somewhat important (5)	Very important (6)	Completely important (7)
1. View from a window (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Plentiful daylight (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Fresh air (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Nature artwork (e.g. landscape paintings, photographs , etc...) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Indoor plants (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I3. Please rate the following indoor design features in terms of their importance to the visitors in hospice residences:

	Completely unimportant (1)	Very unimportant (2)	Somewhat unimportant (3)	Neither unimportant nor important (4)	Somewhat important (5)	Very important (6)	Completely important (7)
1. View from a window (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Plentiful daylight (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Fresh air (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Nature artwork (e.g. landscape paintings, photographs , etc...) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Indoor plants (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I4. How effective is your current facility in providing the following indoor design features?

	Completely ineffective (1)	Very ineffective (2)	Somewhat ineffective (3)	Neither ineffective nor effective (4)	Somewhat effective (5)	Very effective (6)	Completely effective (7)
1. View from a window (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Plentiful daylight (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Fresh air (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Nature artwork (e.g. landscape paintings, photographs, etc...) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Indoor plants (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

O1. Please rate the following outdoor design features in terms of their importance to the patients in hospice residences:

	Completely unimportant (1)	Very unimportant (2)	Somewhat unimportant (3)	Neither unimportant nor important (4)	Somewhat important (5)	Very important (6)	Completely important (7)
1. Child-friendly outdoor features (e.g. spaces encouraging play) (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Features inviting wildlife (e.g. birdfeeders, birdbaths, etc...) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Features affording privacy (e.g. arbors, alcoves, etc...) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Bed-accessible outdoor spaces (e.g. patio or deck adjoining patient room) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Manicured landscaping (e.g. gardens) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unlandscaped areas (e.g. wild nature) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

O2. Please rate the following outdoor design features in terms of their importance to the staff in hospice residences:

	Completely unimportant (1)	Very unimportant (2)	Somewhat unimportant (3)	Neither unimportant nor important (4)	Somewhat important (5)	Very important (6)	Completely important (7)
1. Child-friendly outdoor features (e.g. spaces encouraging play) (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Features inviting wildlife (e.g. birdfeeders, birdbaths, etc...) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Features affording privacy (e.g. arbors, alcoves, etc...) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Bed-accessible outdoor spaces (e.g. patio or deck adjoining patient room) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Manicured landscaping (e.g. gardens) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Unlandscaped areas (e.g. wild nature) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

O3. Please rate the following outdoor design features in terms of their importance to the visitors in hospice residences:

	Completely unimportant (1)	Very unimportant (2)	Somewhat unimportant (3)	Neither unimportant nor important (4)	Somewhat important (5)	Very important (6)	Completely important (7)
1. Child-friendly outdoor features (e.g. spaces encouraging play) (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Features inviting wildlife (e.g. birdfeeders, birdbaths, etc...) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Features affording privacy (e.g. arbors, alcoves, etc...) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Bed-accessible outdoor spaces (e.g. patio or deck adjoining patient room) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Manicured landscaping (e.g. gardens) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Unlandscaped areas (e.g. wild nature) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

04. How effective is your current facility in providing the following outdoor design features?

	Completely ineffective (1)	Very ineffective (2)	Somewhat ineffective (3)	Neither ineffective nor effective (4)	Somewhat effective (5)	Very effective (6)	Completely effective (7)
1. Child-friendly outdoor features (e.g. spaces encouraging play) (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Features inviting wildlife (e.g. birdfeeders, birdbaths, etc...) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Features affording privacy (e.g. arbors, alcoves, etc...) (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Bed-accessible outdoor spaces (e.g. patio or deck adjoining patient room) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Manicured landscaping (e.g. gardens) (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Unlandscaped areas (e.g. wild nature) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

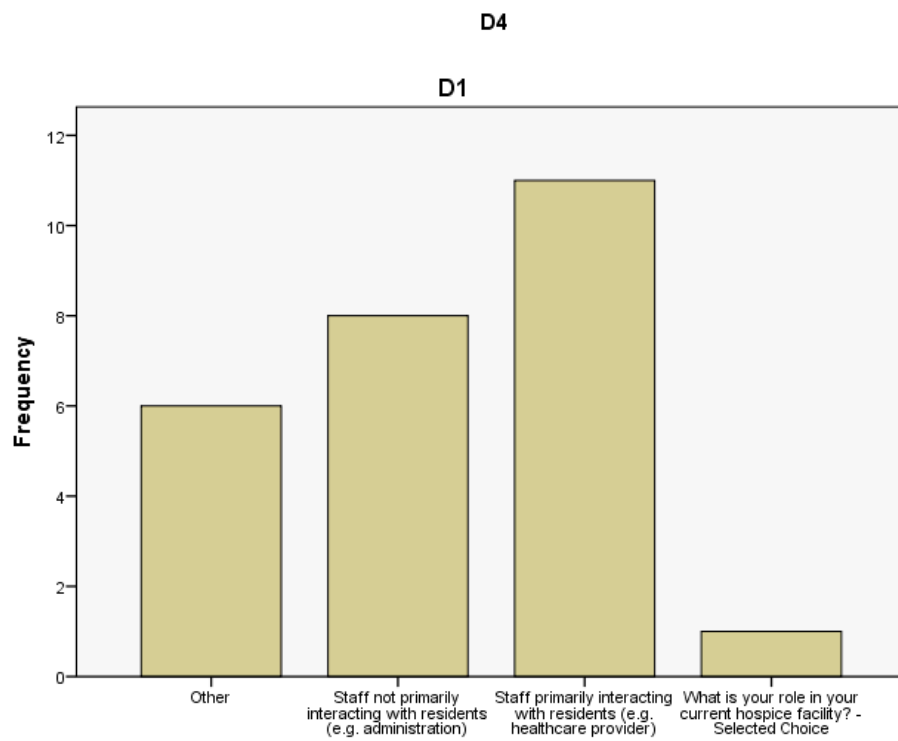
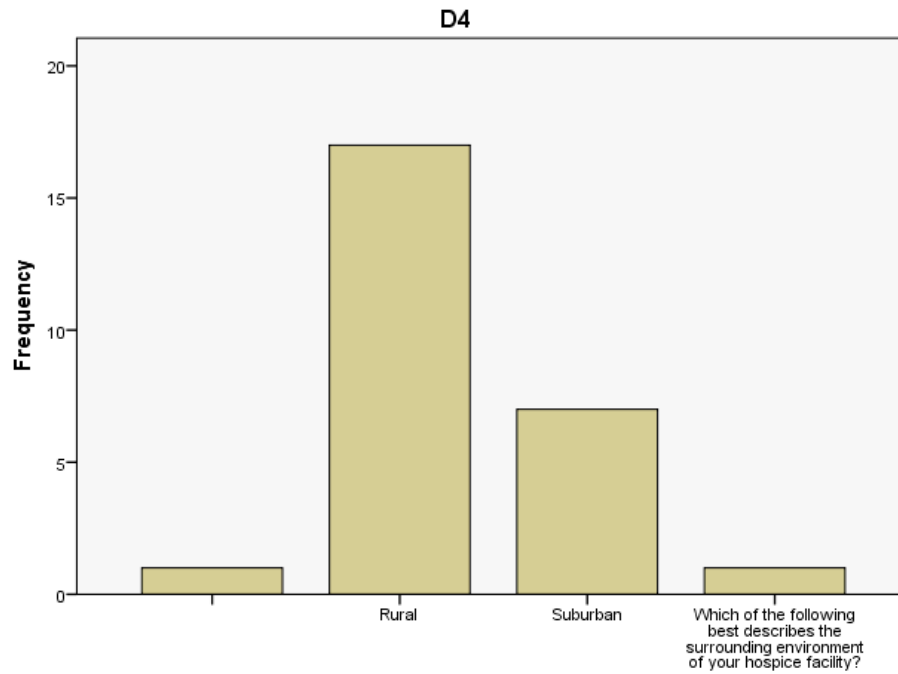
Misc 1. Please provide any additional comments that might be useful to those building or remodeling hospice residences.

Misc 2. Please provide the name and location of any hospice facilities you find to be particularly well-designed.

Misc 3. Please provide your email address below, if you are interested in participating in the drawing for a \$50 Amazon gift certificate. Your responses to the survey will remain confidential.

Appendix D

Survey Data



D1

		Statistics					
		D1	D2	D3	D4	D5	D6
N	Valid	26	24	24	26	24	26
	Missing	0	2	2	0	2	0
Mean			13.08	8.354		6.83	
Median			10.00	6.000		6.00	
Std. Deviation			10.790	8.4061		2.761	

Frequency Table

		D1			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Other	6	23.1	23.1	23.1
	Staff not primarily interacting with residents (e.g. administration)	8	30.8	30.8	53.8
	Staff primarily interacting with residents (e.g. healthcare provider)	11	42.3	42.3	96.2
	What is your role in your current hospice facility? - Selected Choice	1	3.8	3.8	100.0
	Total	26	100.0	100.0	

		D2			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	3.8	4.2	4.2
	3	4	15.4	16.7	20.8
	5	2	7.7	8.3	29.2

	6	1	3.8	4.2	33.3
	8	1	3.8	4.2	37.5
	9	1	3.8	4.2	41.7
	10	4	15.4	16.7	58.3
	13	1	3.8	4.2	62.5
	15	3	11.5	12.5	75.0
	16	1	3.8	4.2	79.2
	17	1	3.8	4.2	83.3
	26	1	3.8	4.2	87.5
	35	2	7.7	8.3	95.8
	40	1	3.8	4.2	100.0
	Total	24	92.3	100.0	
Missing	System	2	7.7		
Total		26	100.0		

D3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.0	1	3.8	4.2	4.2
	2.0	3	11.5	12.5	16.7
	2.5	1	3.8	4.2	20.8
	3.0	4	15.4	16.7	37.5
	5.0	2	7.7	8.3	45.8
	6.0	2	7.7	8.3	54.2
	8.0	1	3.8	4.2	58.3
	9.0	1	3.8	4.2	62.5
	10.0	4	15.4	16.7	79.2
	11.0	1	3.8	4.2	83.3
	13.0	1	3.8	4.2	87.5
	17.0	1	3.8	4.2	91.7
	20.0	1	3.8	4.2	95.8
	40.0	1	3.8	4.2	100.0
	Total	24	92.3	100.0	
Missing	System	2	7.7		
Total		26	100.0		

D4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	3.8	3.8	3.8
	Rural	17	65.4	65.4	69.2
	Suburban	7	26.9	26.9	96.2
	Which of the following best describes the surrounding environment of your hospice facility?	1	3.8	3.8	100.0
	Total	26	100.0	100.0	

D5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	3.8	4.2	4.2
	6	18	69.2	75.0	79.2
	8	1	3.8	4.2	83.3
	10	1	3.8	4.2	87.5
	12	2	7.7	8.3	95.8
	14	1	3.8	4.2	100.0
	Total	24	92.3	100.0	
Missing	System	2	7.7		
Total		26	100.0		

D6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	3.8	3.8	3.8
	Is your current facility physically attached or next door to a general hospital?	1	3.8	3.8	7.7

No	22	84.6	84.6	92.3
Yes	2	7.7	7.7	100.0
Total	26	100.0	100.0	

Statistics

	D1	D2	D3	D4	D5	D6	G1_1
N Valid	26	24	24	26	24	26	25
Missing	0	2	2	0	2	0	1
Mean		13.08	8.354		6.83		5.92
Median		10.00	6.000		6.00		6.00
Std. Deviation		10.790	8.4061		2.761		.862

Statistics

	G1_2	G1_3	G1_4	G1_5	G2_1	G2_2	G2_3
N Valid	25	25	25	25	25	25	25
Missing	1	1	1	1	1	1	1
Mean	5.00	5.96	5.32	4.84	5.76	5.16	5.64
Median	5.00	6.00	6.00	5.00	6.00	5.00	6.00
Std. Deviation	.816	.841	1.249	1.313	.831	.898	.860

Statistics

	G2_4	G2_5	G3_1	G3_2	G3_3	G3_4	G3_5
N Valid	25	25	24	25	25	25	25
Missing	1	1	2	1	1	1	1
Mean	5.24	5.44	5.92	5.24	5.80	5.24	5.92
Median	5.00	5.00	6.00	5.00	6.00	5.00	6.00
Std. Deviation	.970	1.387	.830	.879	.866	.970	.909

Statistics

	G4_1	G4_2	G4_3	G4_4	G4_5	I1_1	I1_2
N Valid	24	24	24	23	24	25	24
Missing	2	2	2	3	2	1	2
Mean	5.42	5.17	6.33	5.87	6.08	6.64	6.17
Median	6.00	6.00	6.50	6.00	6.00	7.00	6.00
Std. Deviation	1.666	1.761	.816	1.014	1.349	.638	.868

Statistics

	I1_3	I1_4	I1_5	I2_1	I2_2	I2_3	I2_4
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N	Valid	25	25	25	25	25	25	25
	Missing	1	1	1	1	1	1	1
Mean		6.24	5.48	5.44	6.28	6.52	6.44	5.32
Median		6.00	5.00	6.00	6.00	7.00	6.00	5.00
Std. Deviation		.831	1.046	.870	.737	.510	.583	.900

Statistics

		I2_5	I3_1	I3_2	I3_3	I3_4	I3_5	I4_1
N	Valid	25	25	25	25	25	25	24
	Missing	1	1	1	1	1	1	2
Mean		5.56	6.48	6.36	6.32	5.36	5.32	6.71
Median		6.00	7.00	6.00	7.00	5.00	5.00	7.00
Std. Deviation		1.003	.586	.638	.900	.995	1.145	.464

Statistics

		I4_2	I4_3	I4_4	I4_5	O1_1	O1_2	O1_3
N	Valid	24	23	23	24	25	25	25
	Missing	2	3	3	2	1	1	1
Mean		6.63	6.30	5.87	5.79	4.76	6.16	5.60
Median		7.00	7.00	6.00	6.00	5.00	6.00	6.00
Std. Deviation		.576	.876	.920	1.021	.970	.688	1.258

Statistics

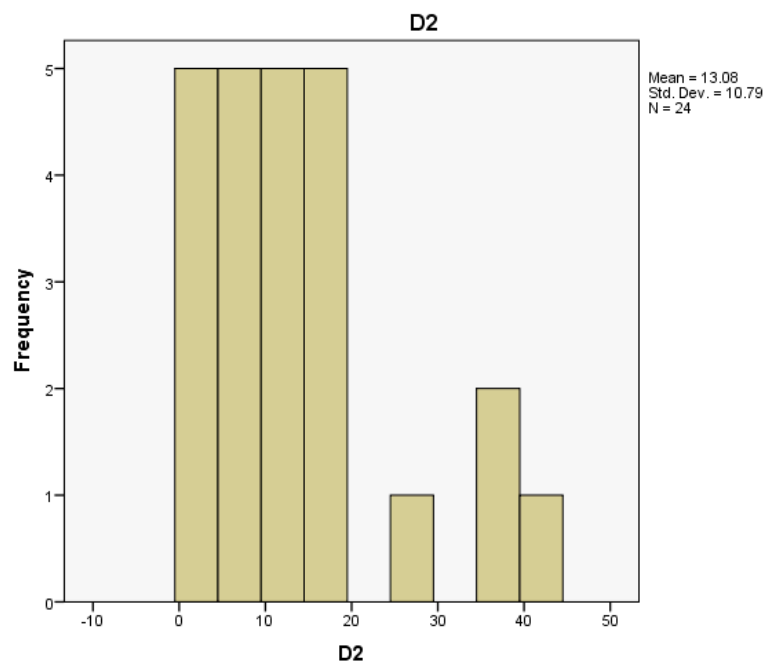
		O1_4	O1_5	O1_6	O2_1	O2_2	O2_3	O2_4
N	Valid	25	25	25	24	25	25	25
	Missing	1	1	1	2	1	1	1
Mean		6.04	5.96	5.76	5.00	6.00	5.32	5.72
Median		6.00	6.00	6.00	5.00	6.00	5.00	6.00
Std. Deviation		.935	.889	.970	.933	.866	1.069	.891

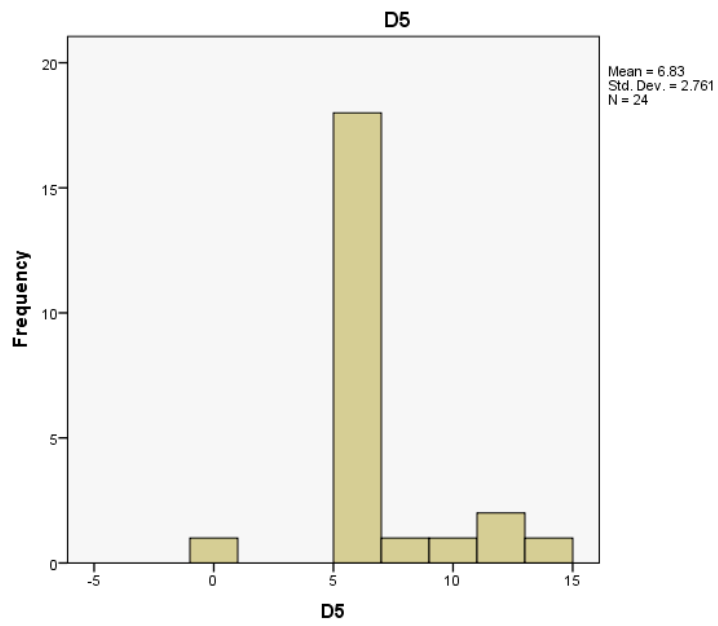
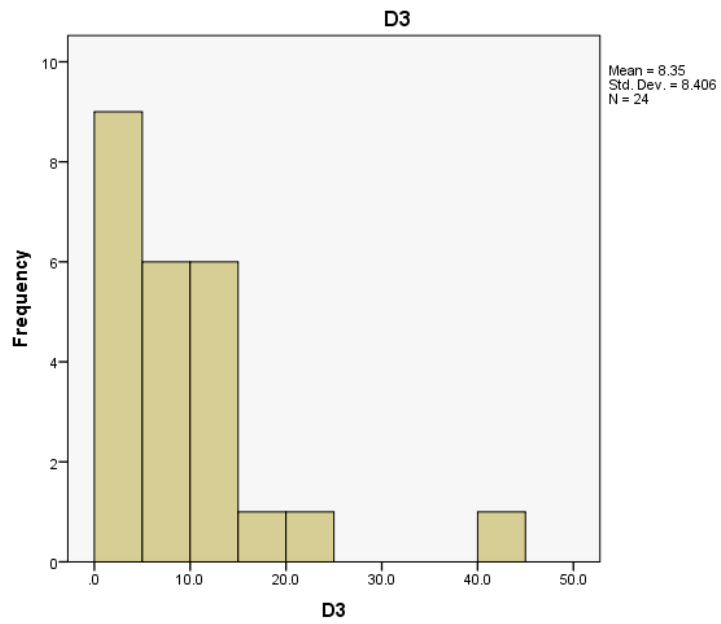
Statistics

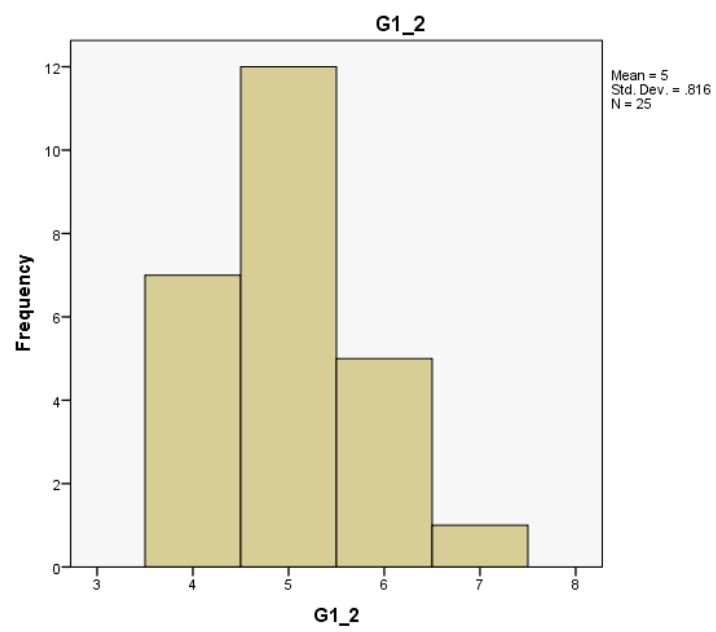
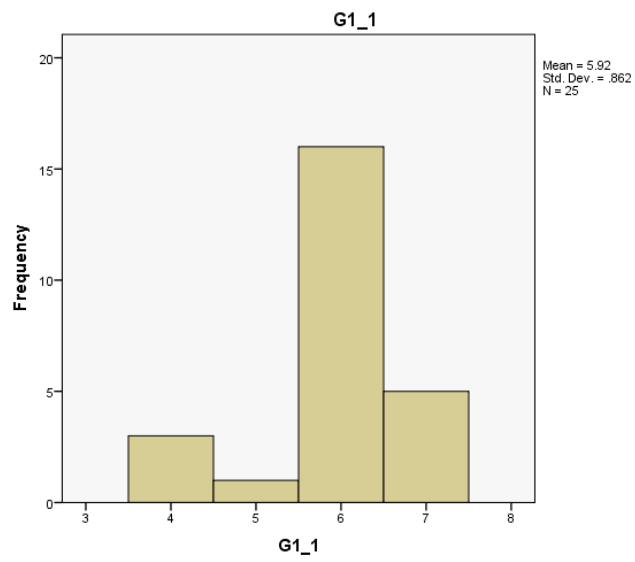
		O2_5	O2_6	O3_1	O3_2	O3_3	O3_4	O3_5
N	Valid	25	25	25	25	25	25	25
	Missing	1	1	1	1	1	1	1
Mean		5.72	5.28	5.56	6.08	5.80	5.96	6.08
Median		6.00	5.00	6.00	6.00	6.00	6.00	6.00
Std. Deviation		.737	1.208	1.193	.759	1.041	1.020	.702

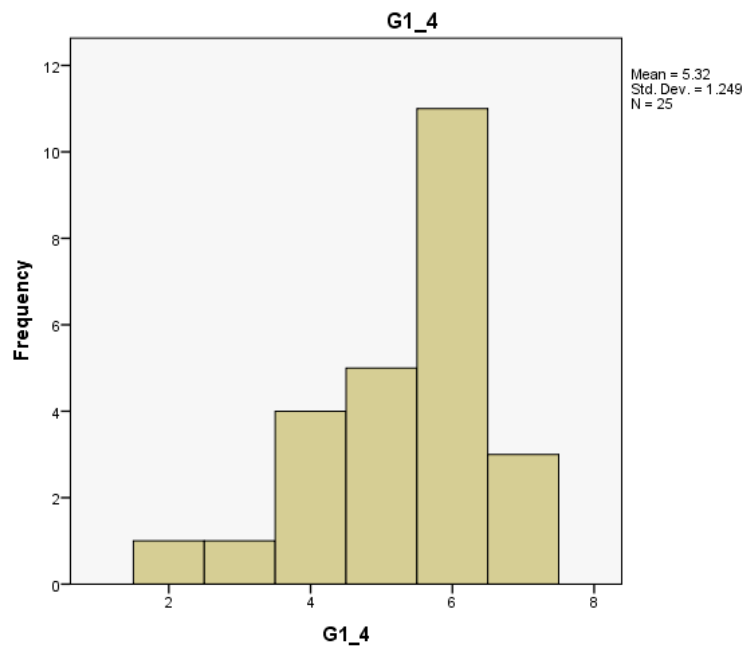
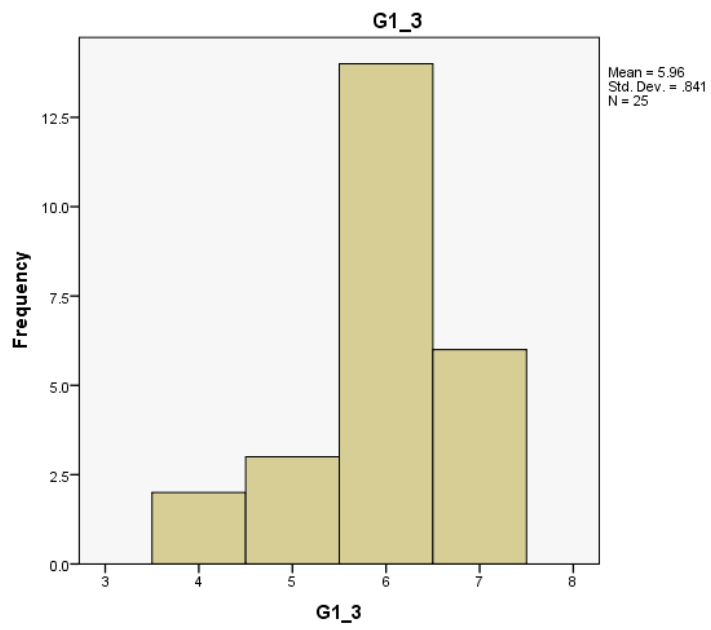
Statistics

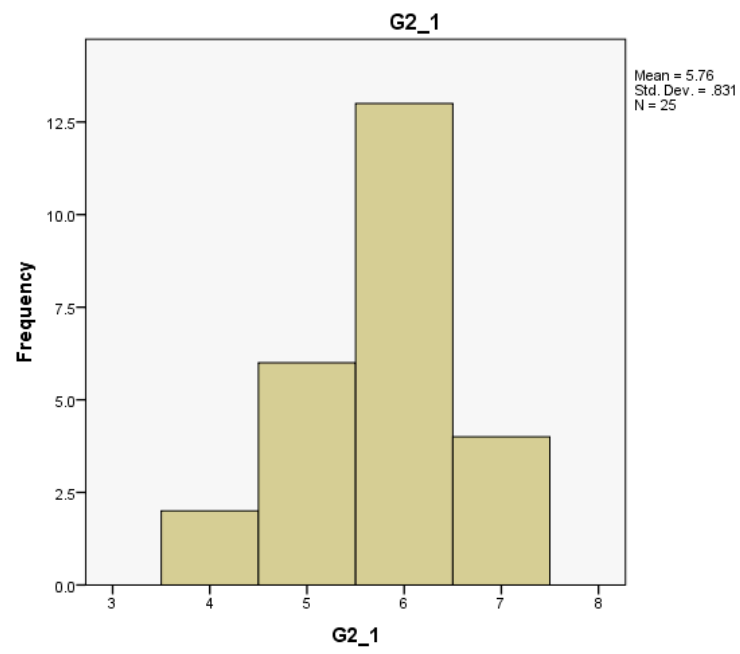
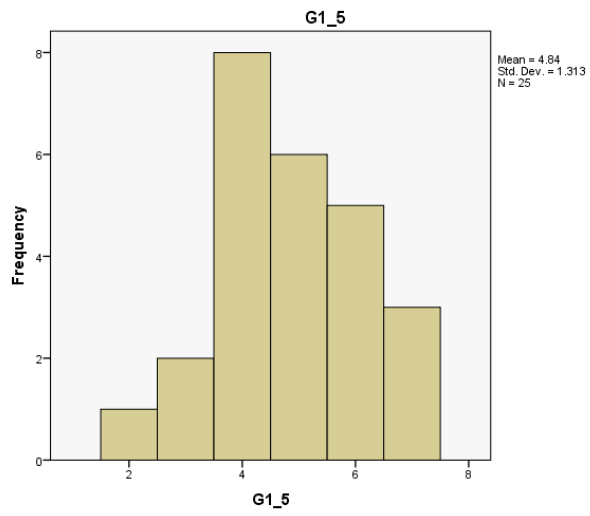
		O3_6	O4_1	O4_2	O4_3	O4_4	O4_5	O4_6
N	Valid	25	24	24	24	23	24	24
	Missing	1	2	2	2	3	2	2
Mean		5.56	4.13	6.58	5.17	5.39	6.71	6.42
Median		6.00	4.00	7.00	5.00	6.00	7.00	7.00
Std. Deviation		1.044	2.050	.584	1.308	2.105	.550	.881

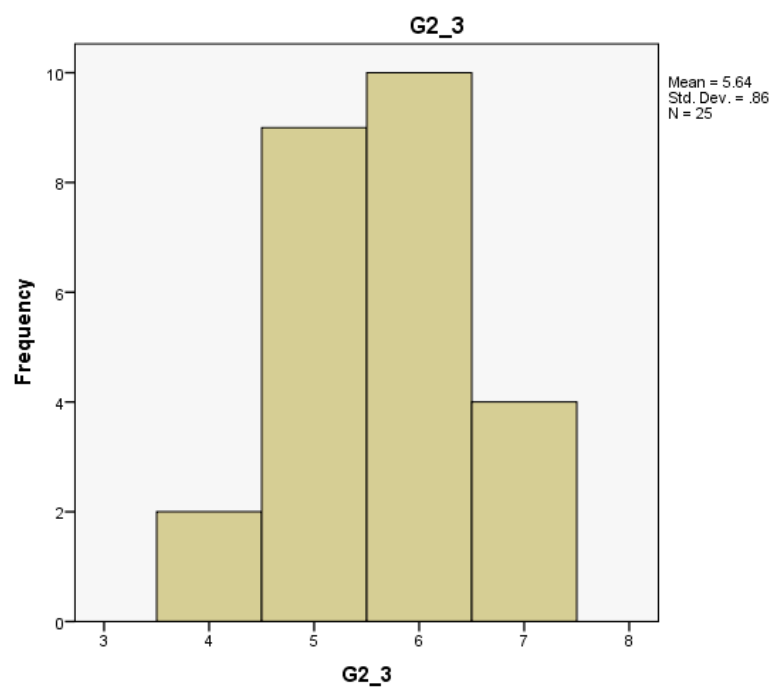
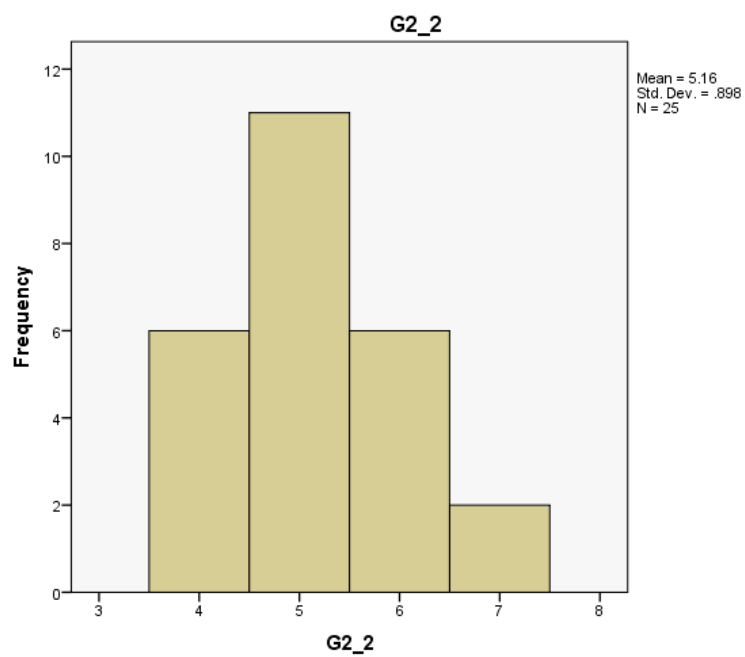


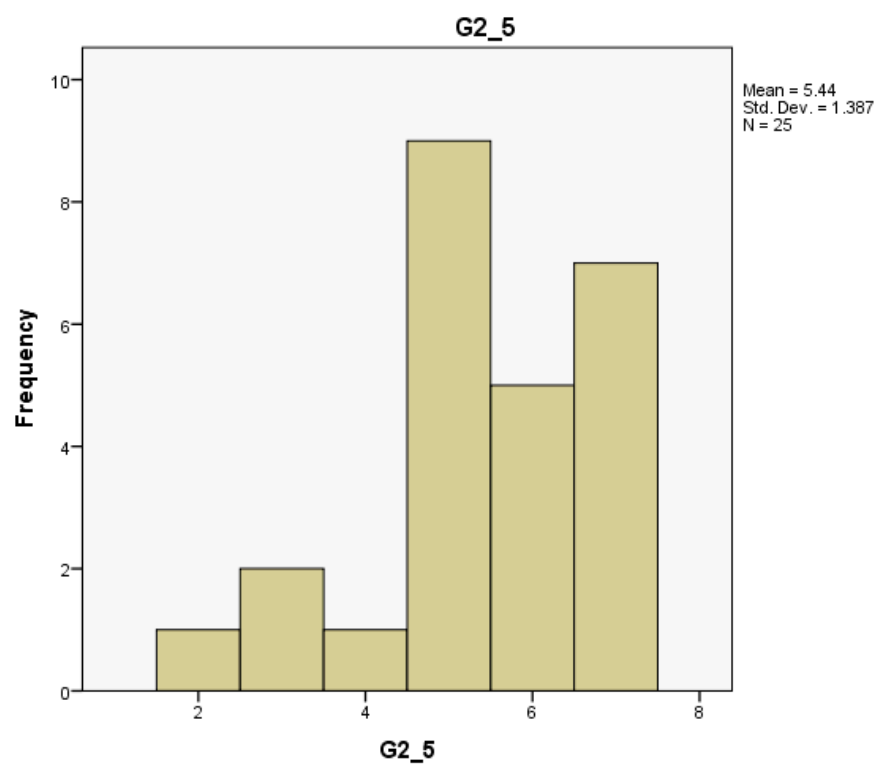
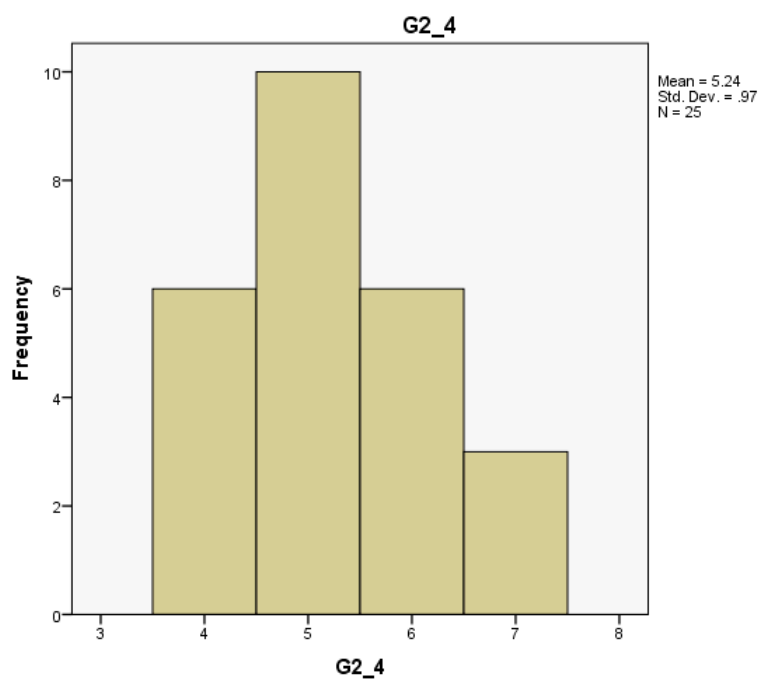


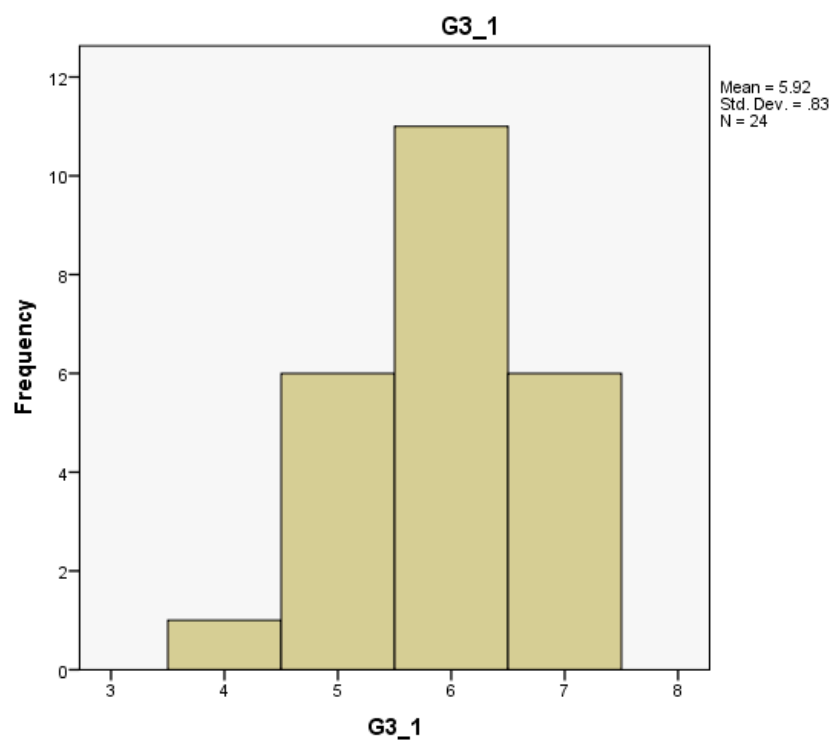


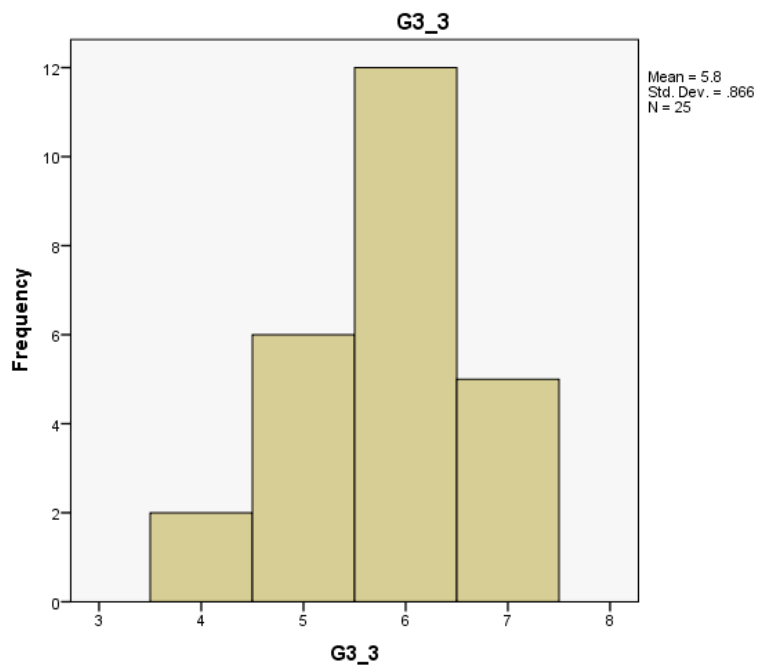
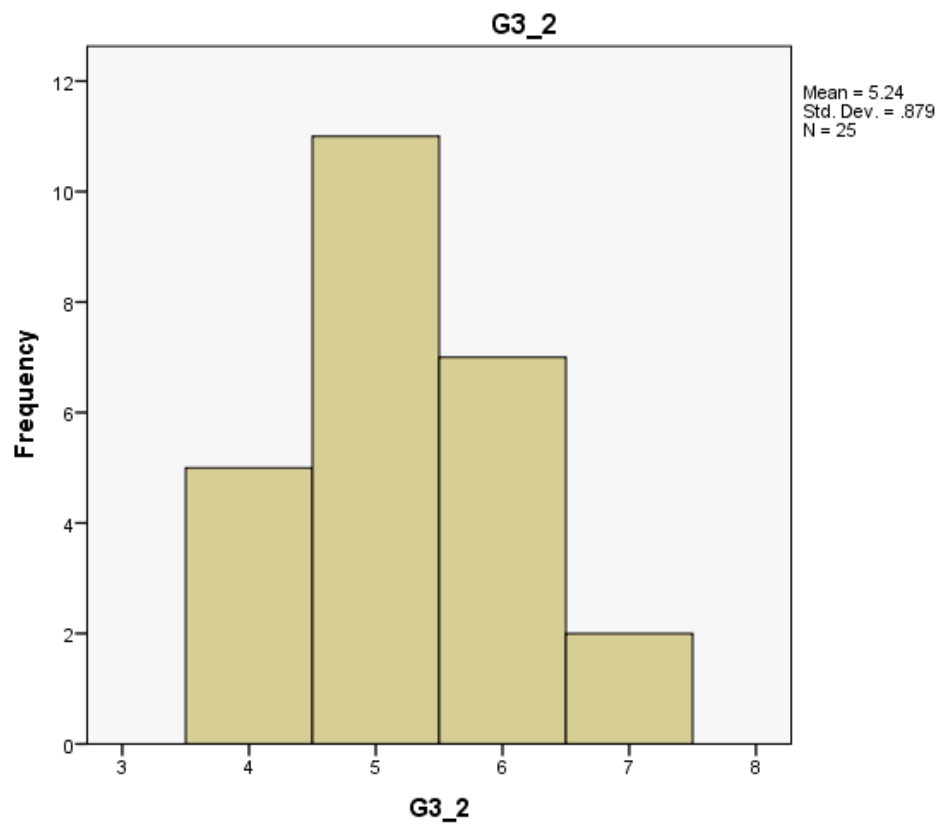


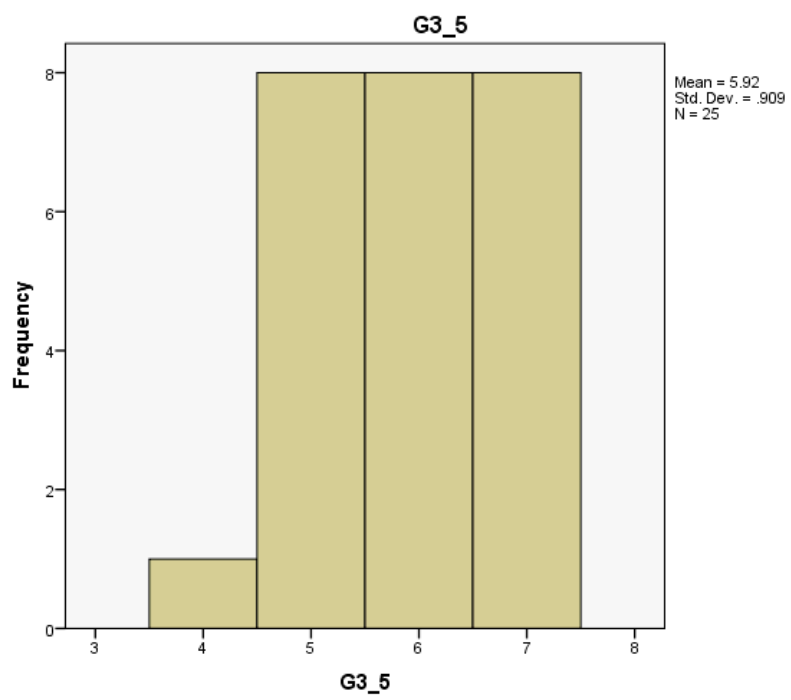
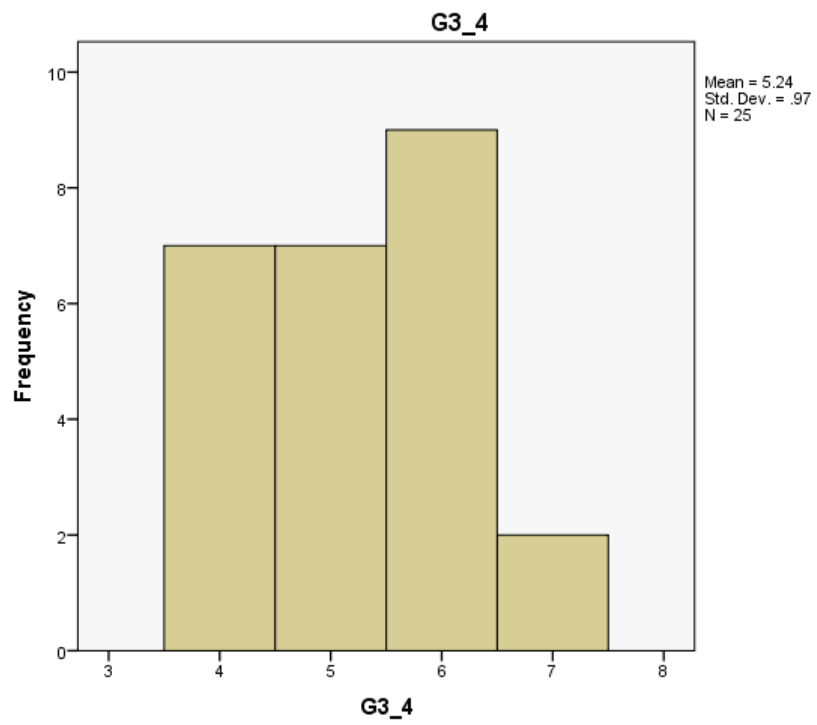


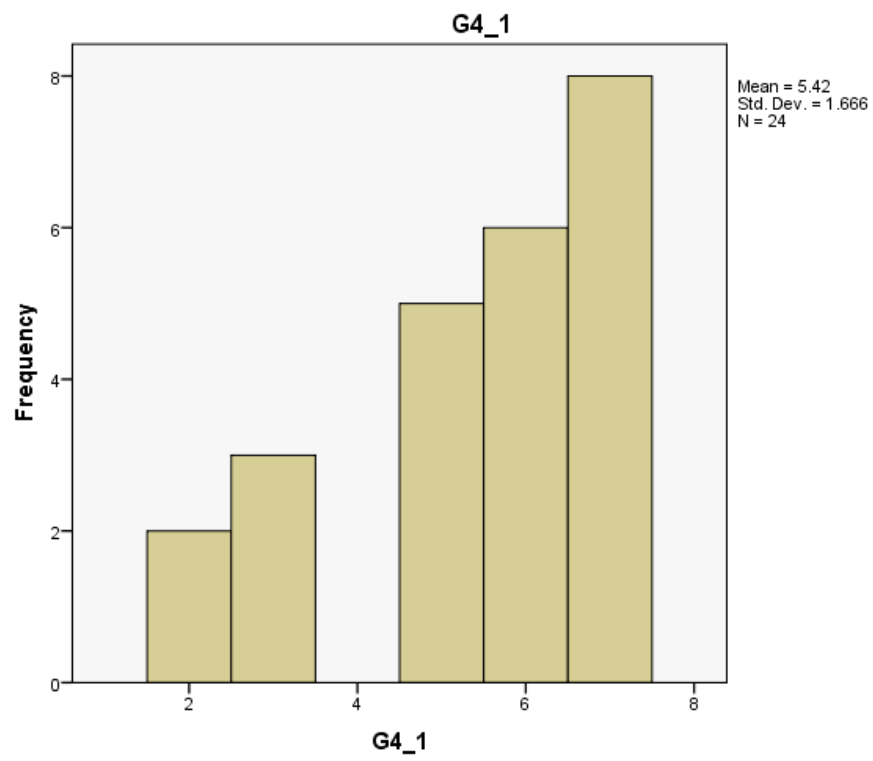


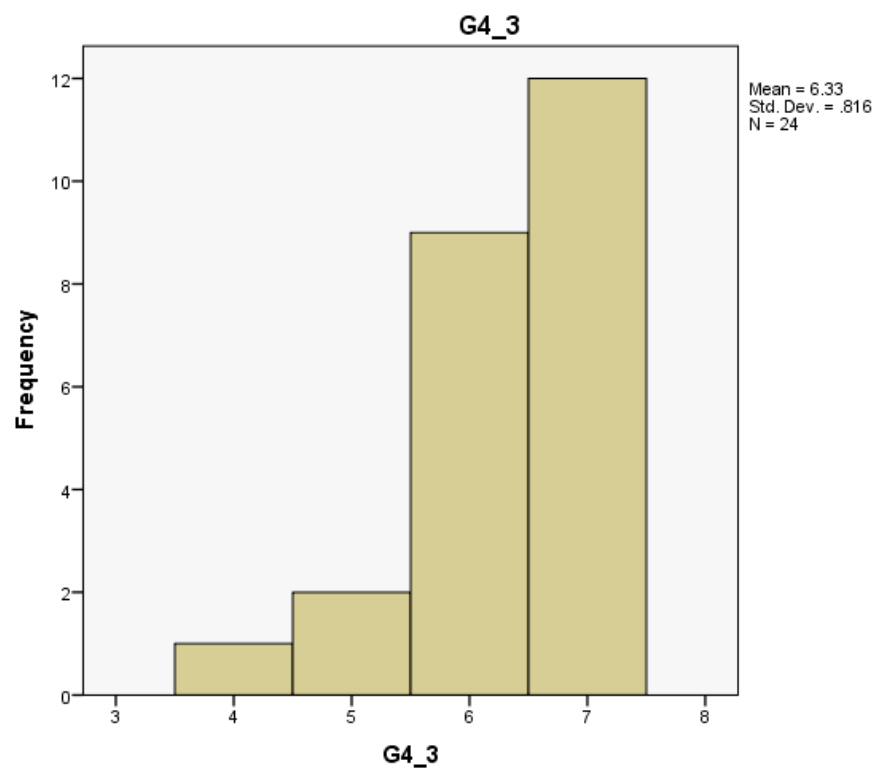
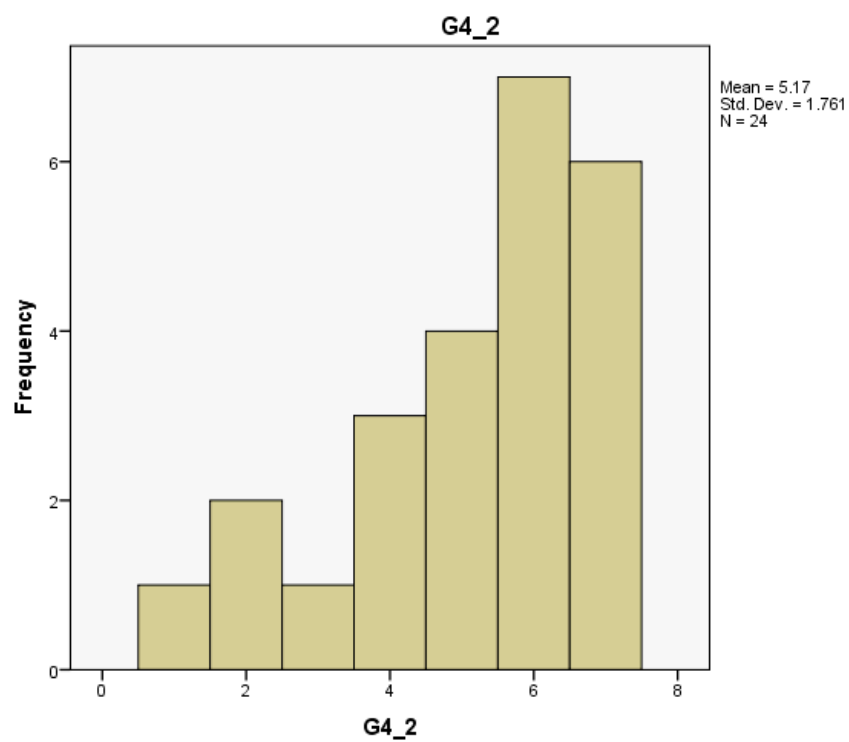


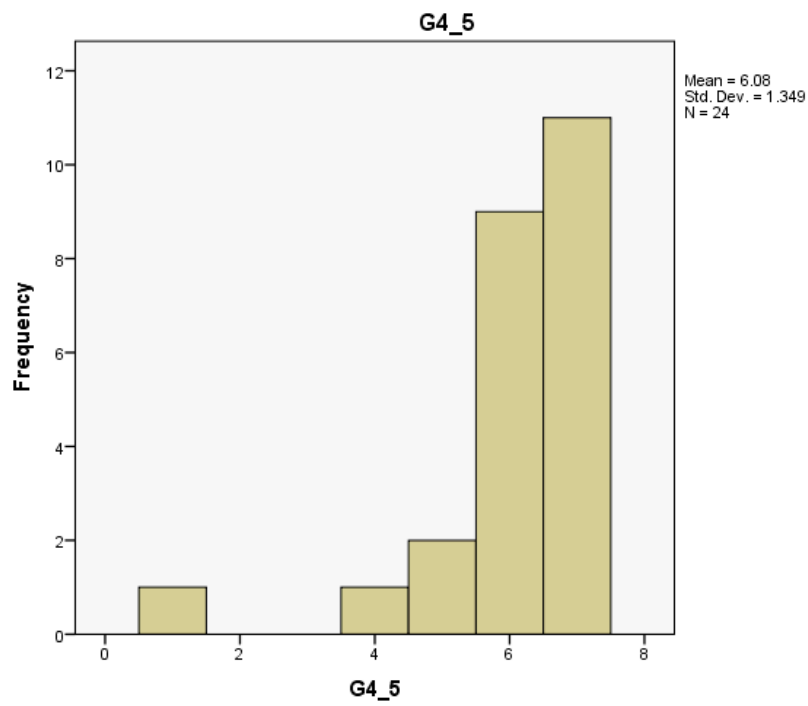
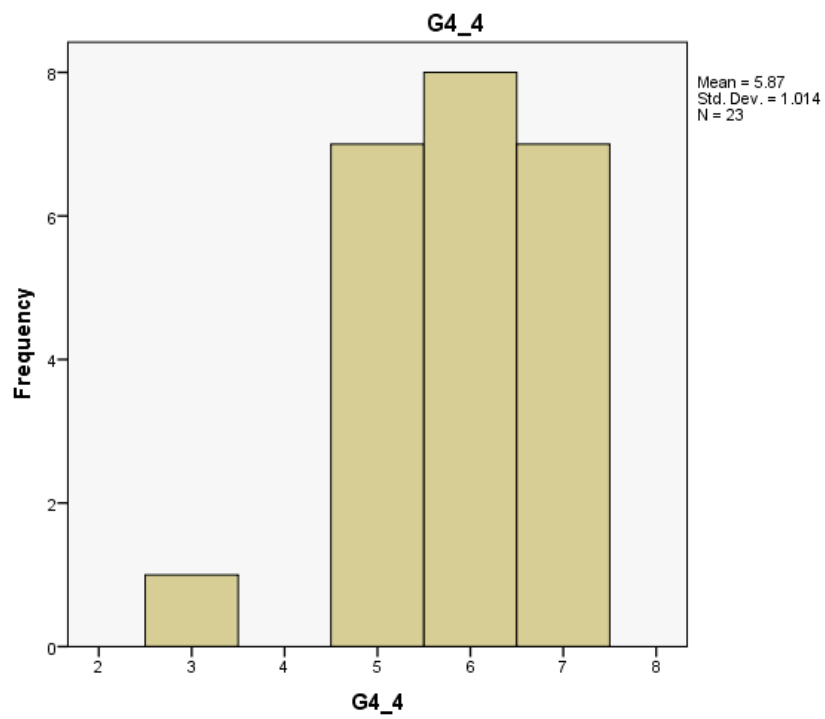


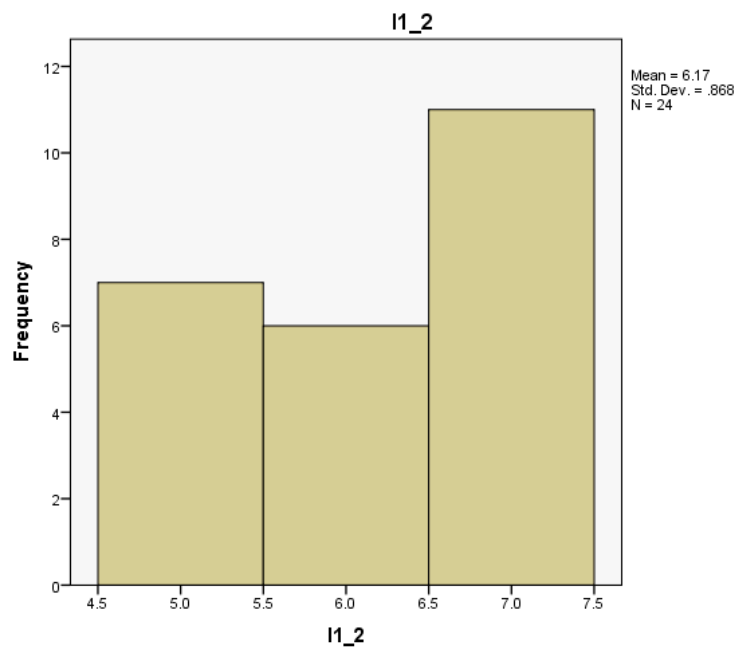
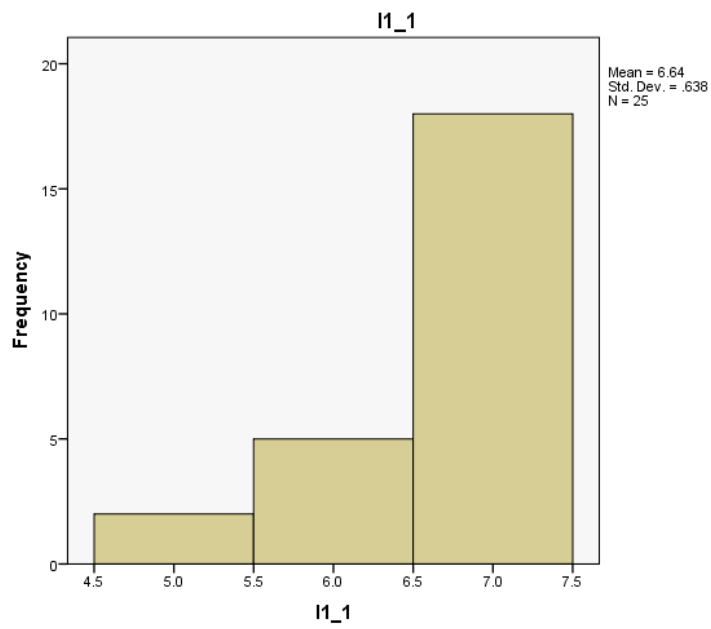


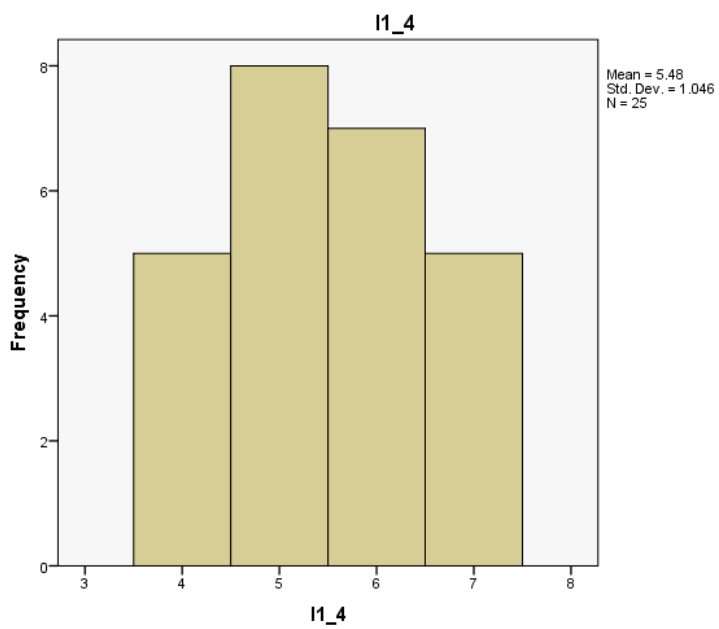
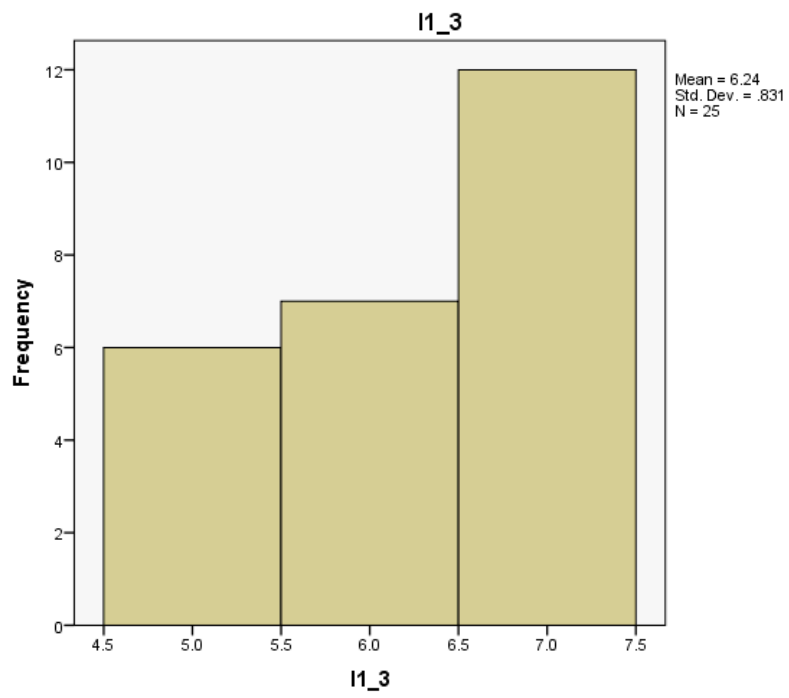


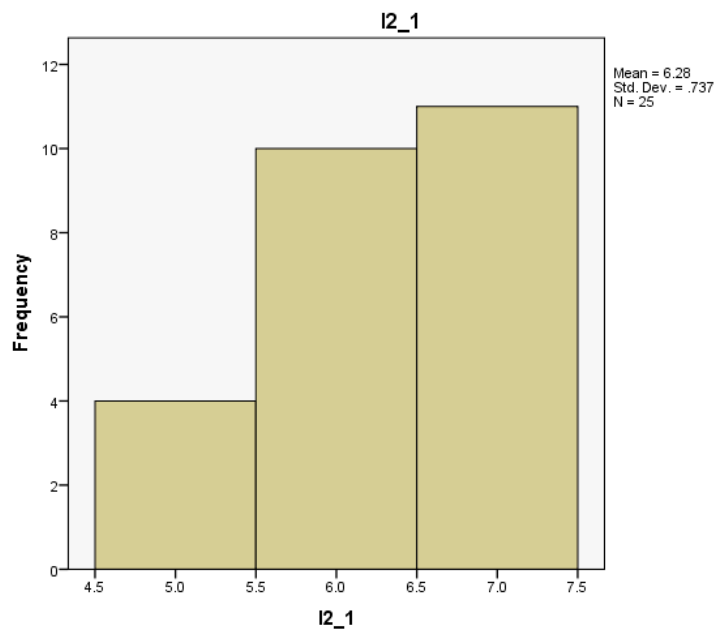
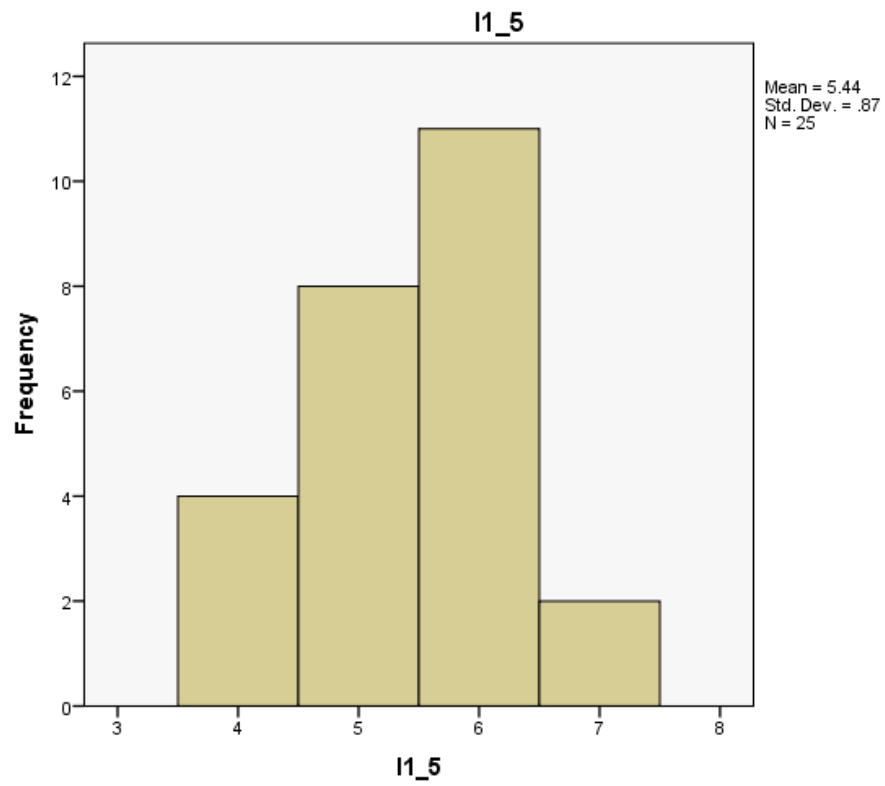


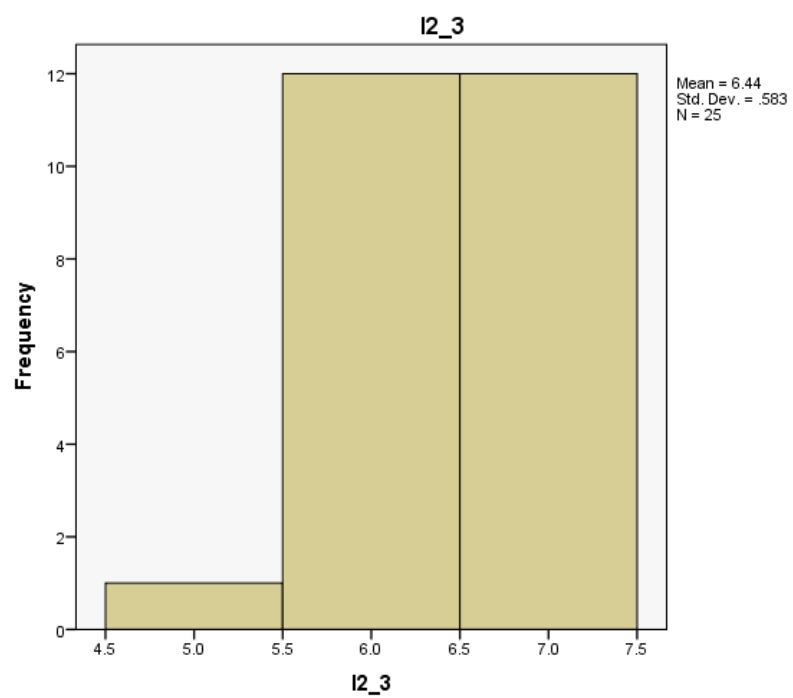
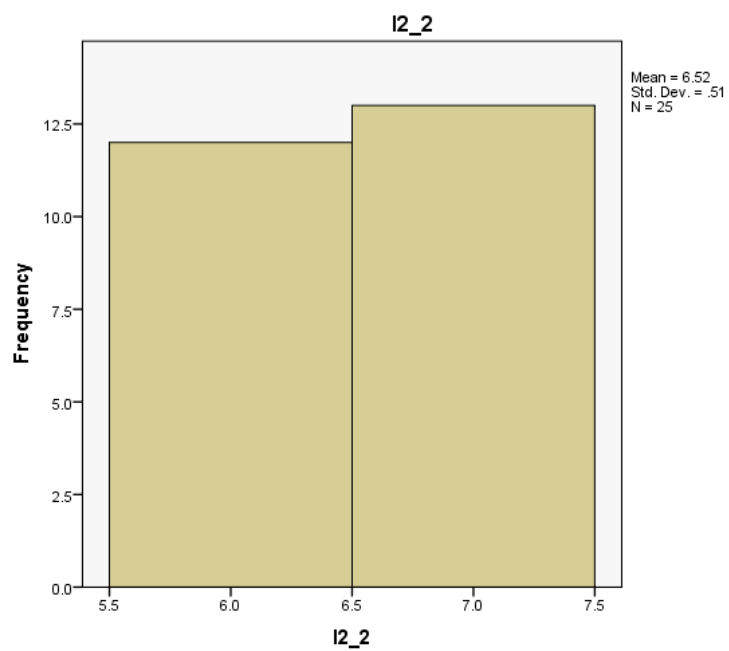


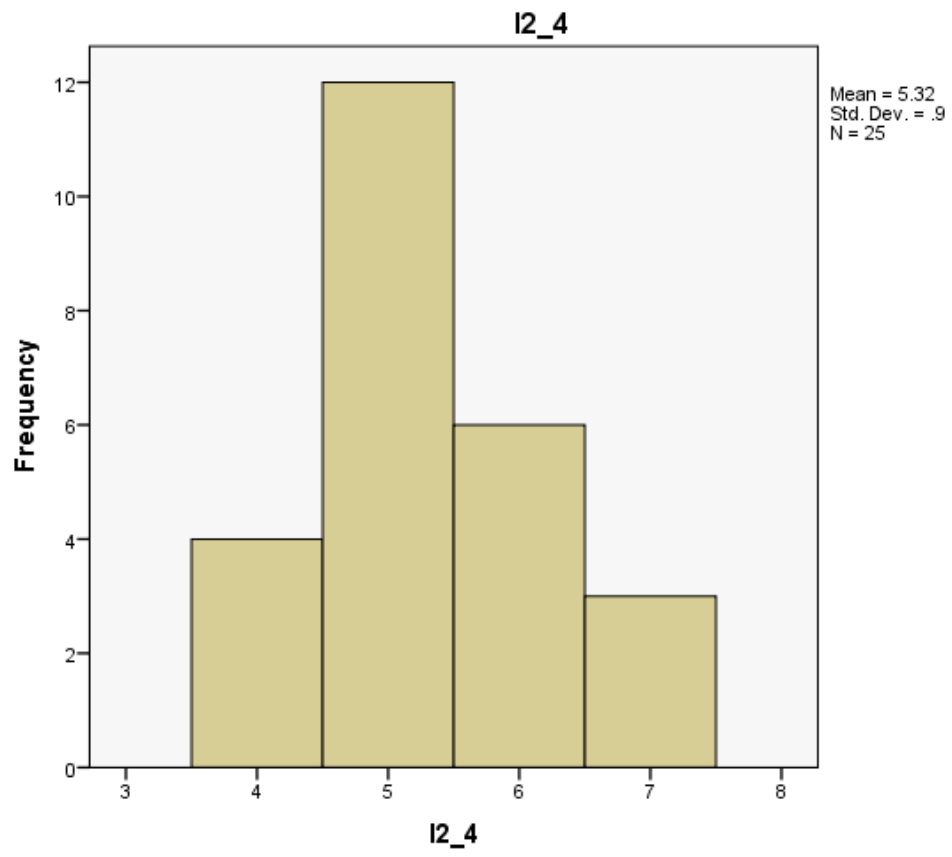


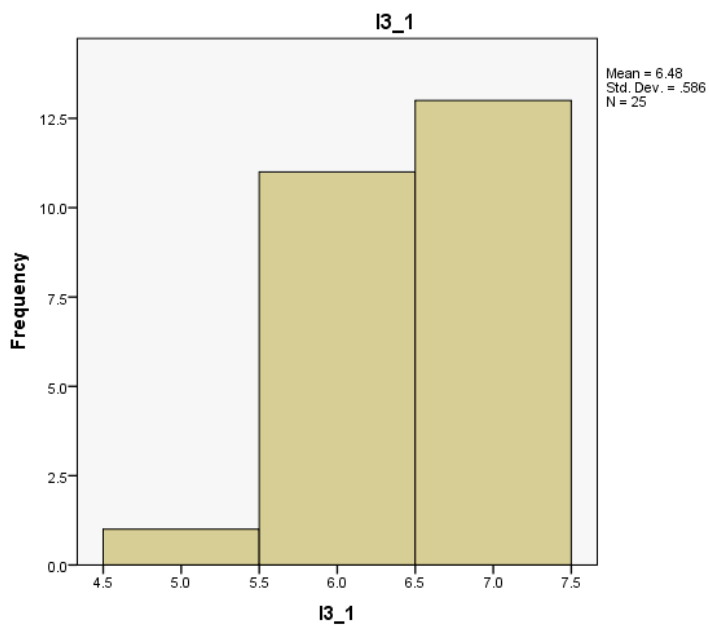
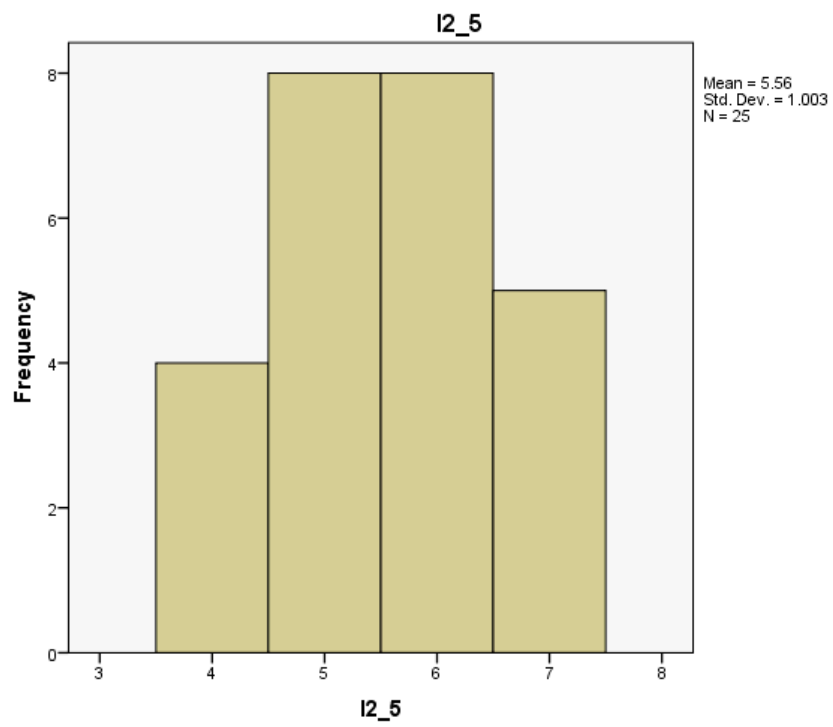


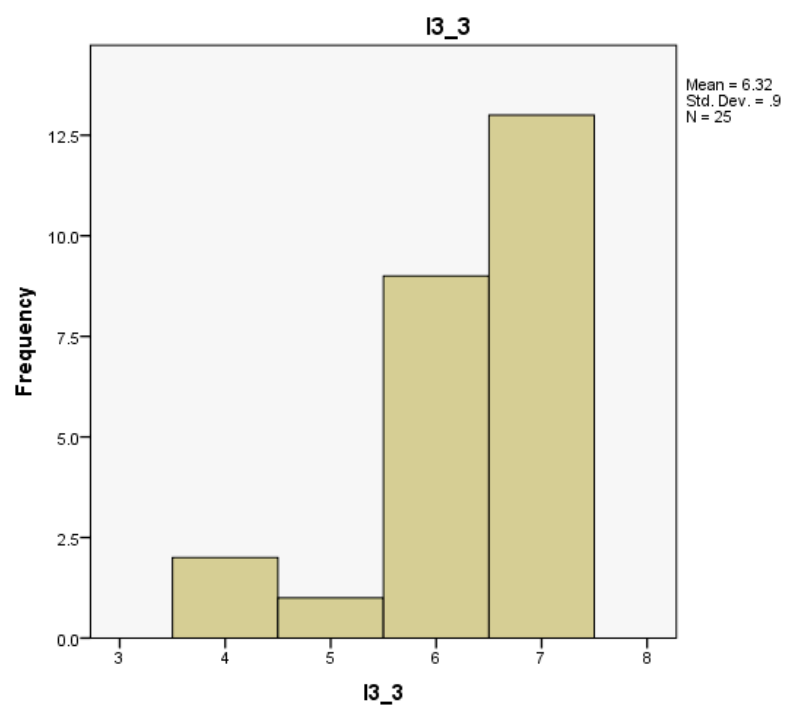
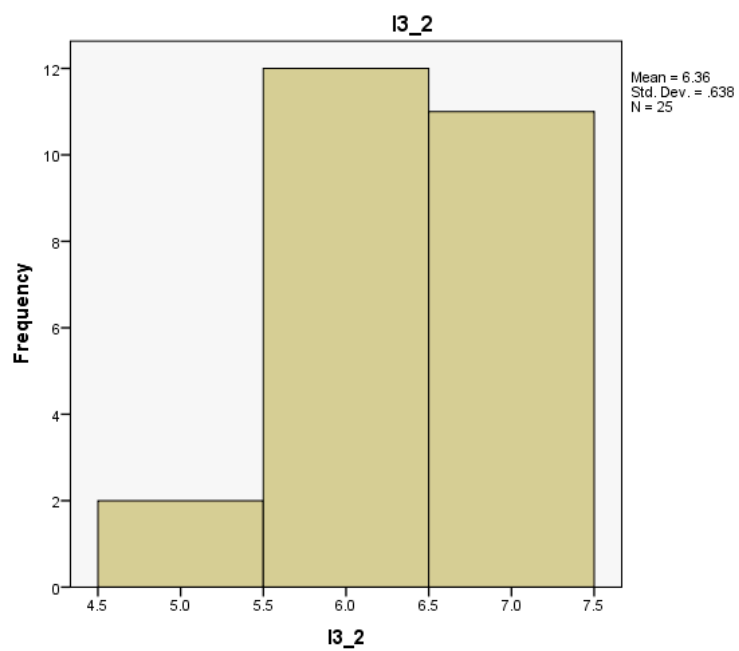


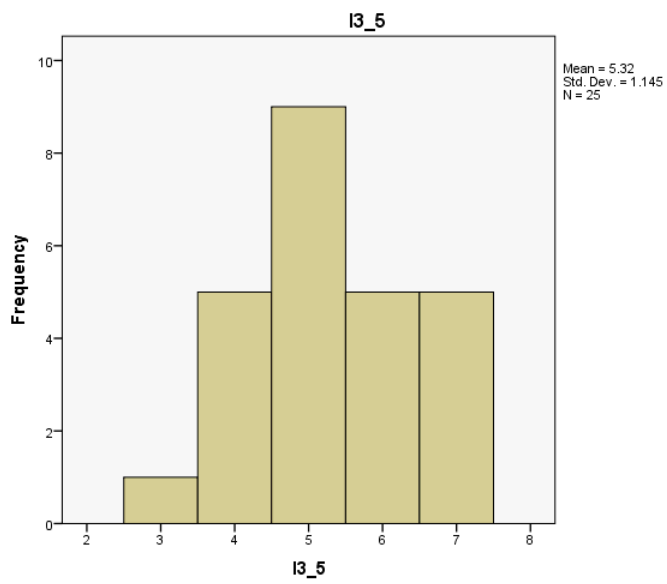
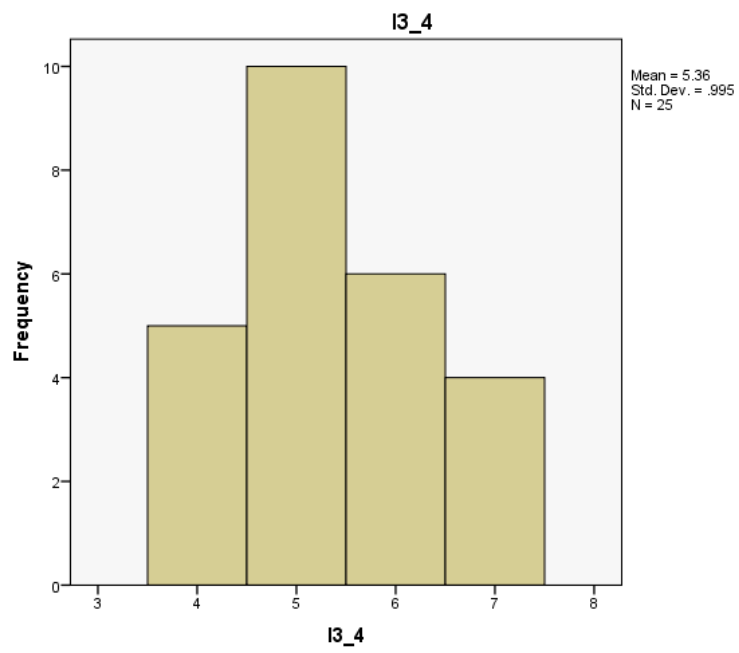


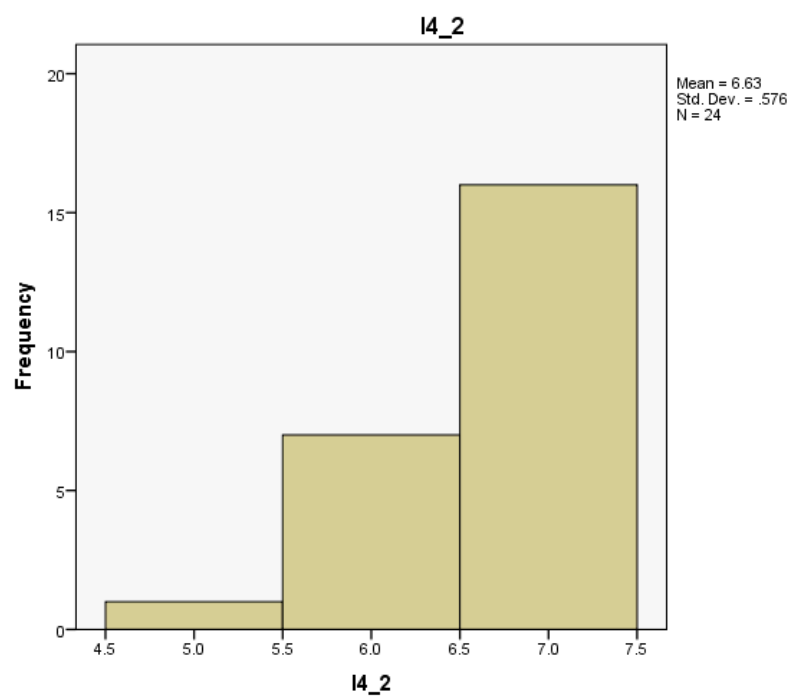
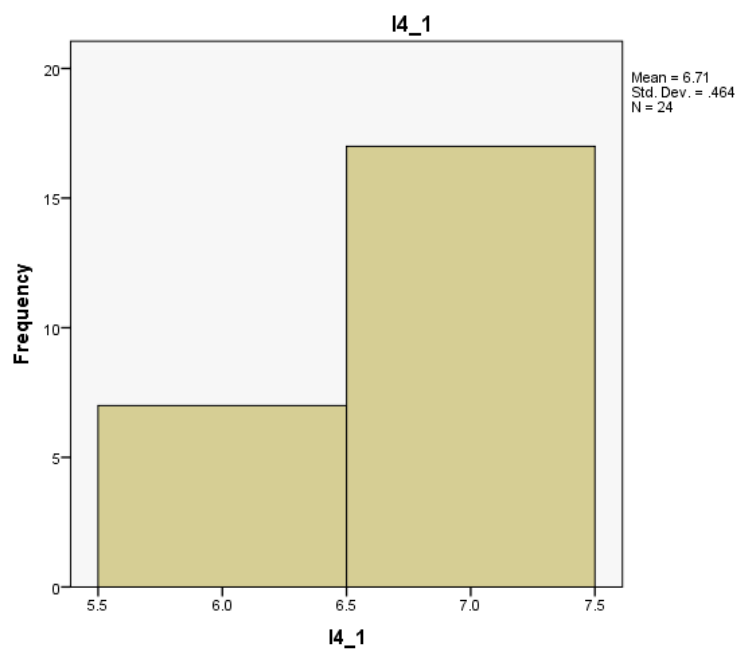


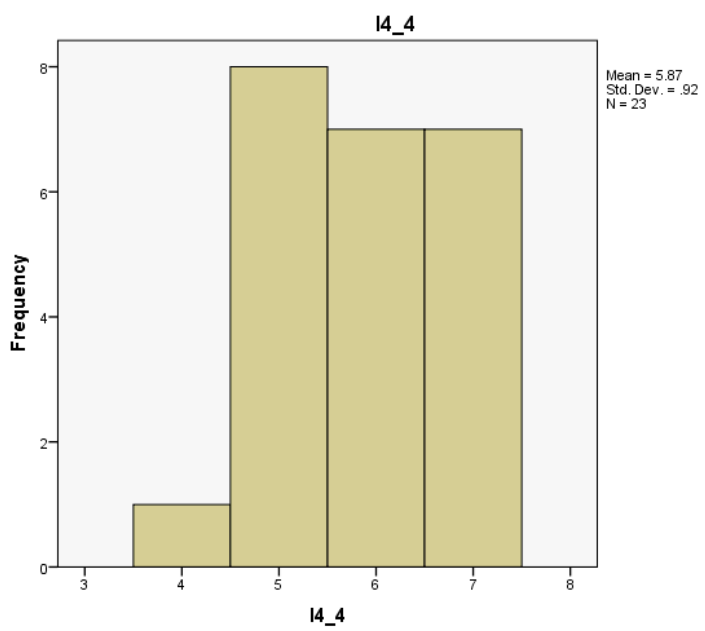
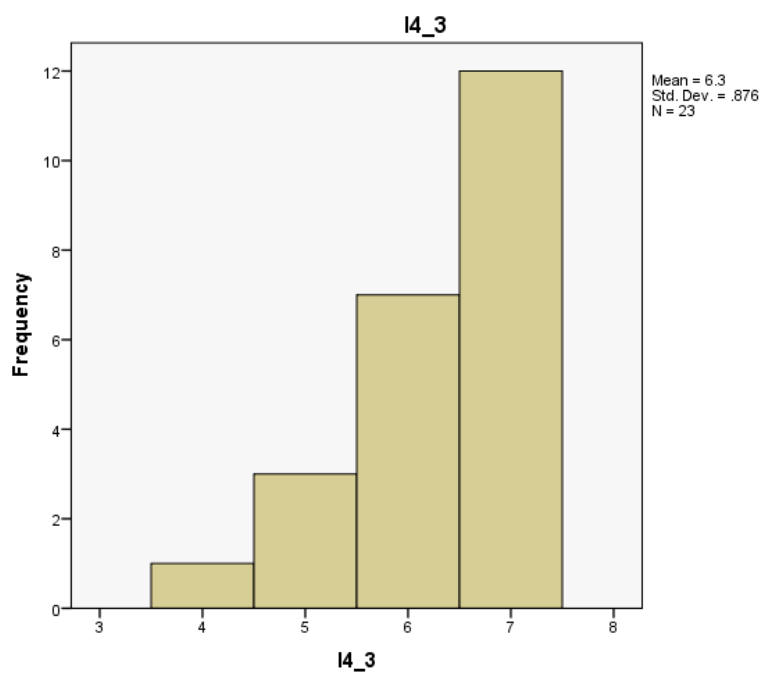


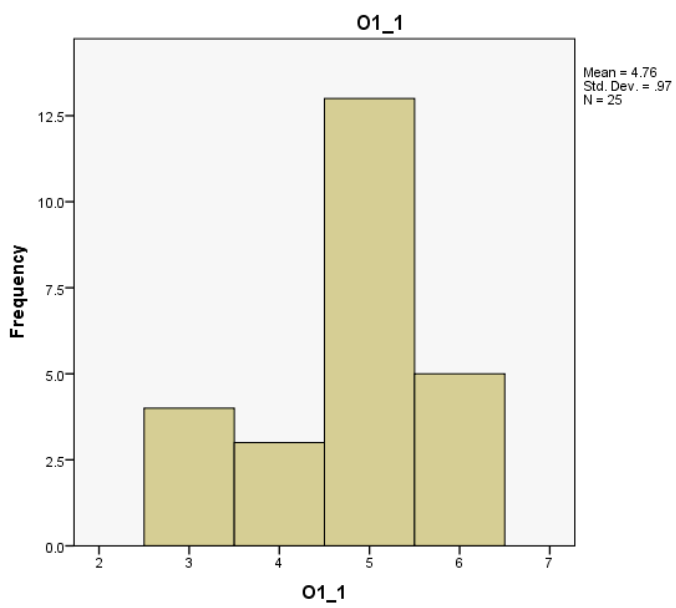
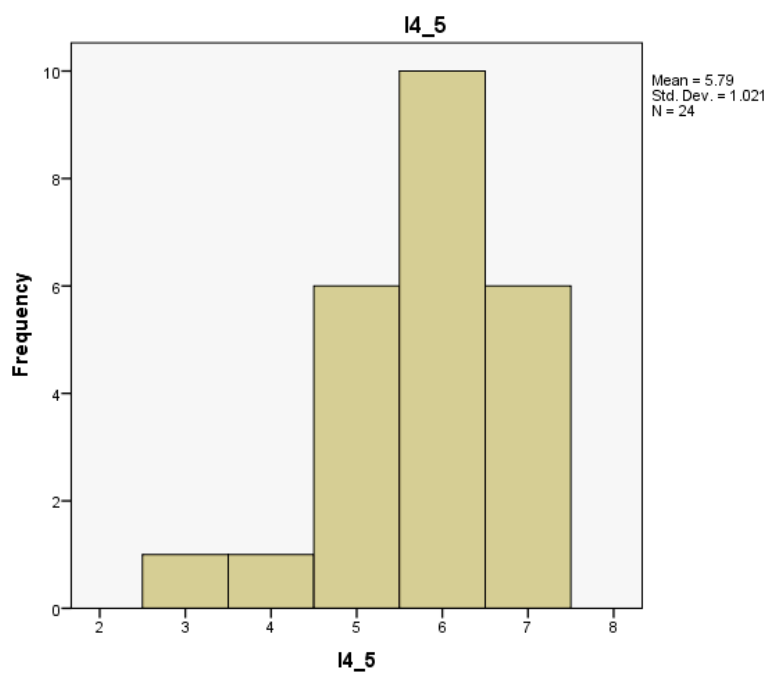


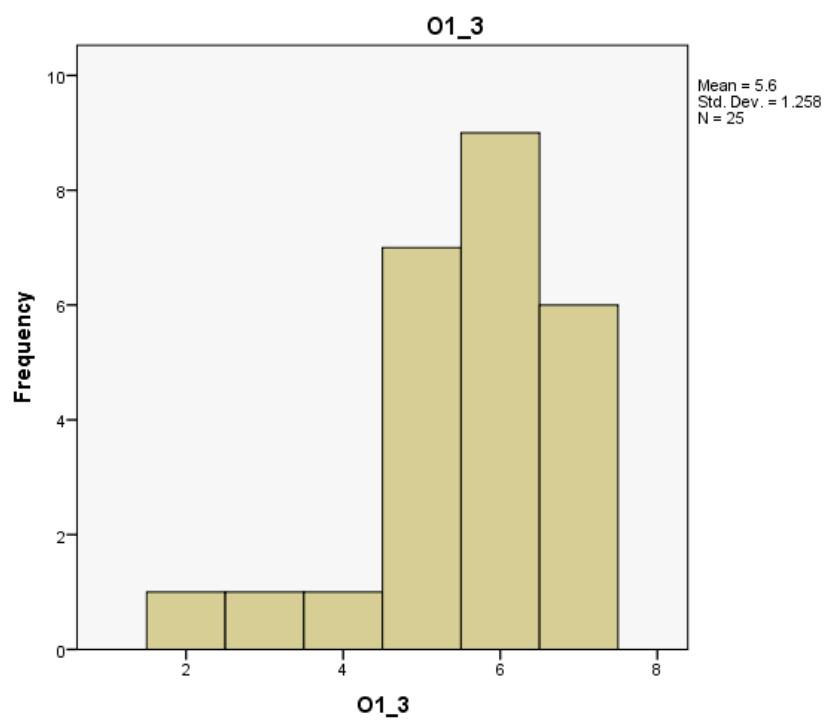
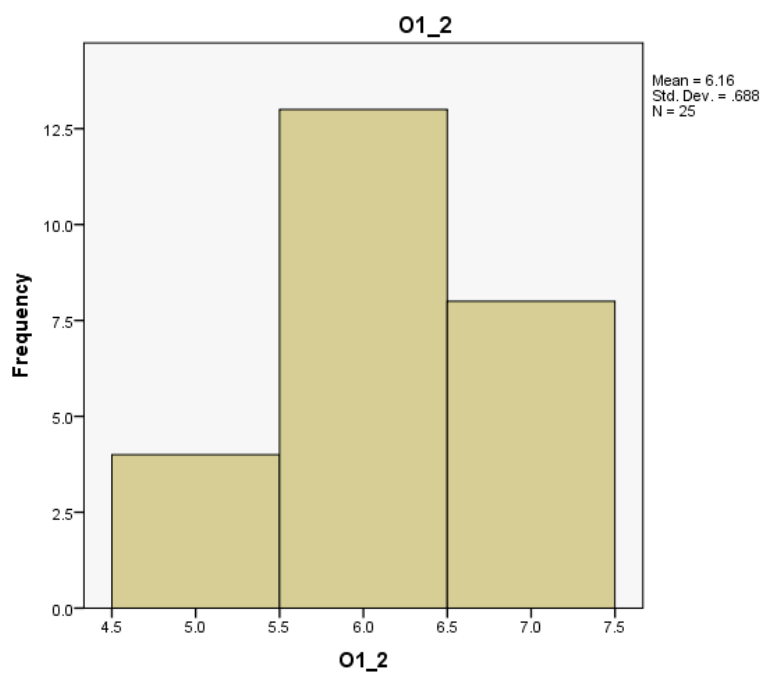


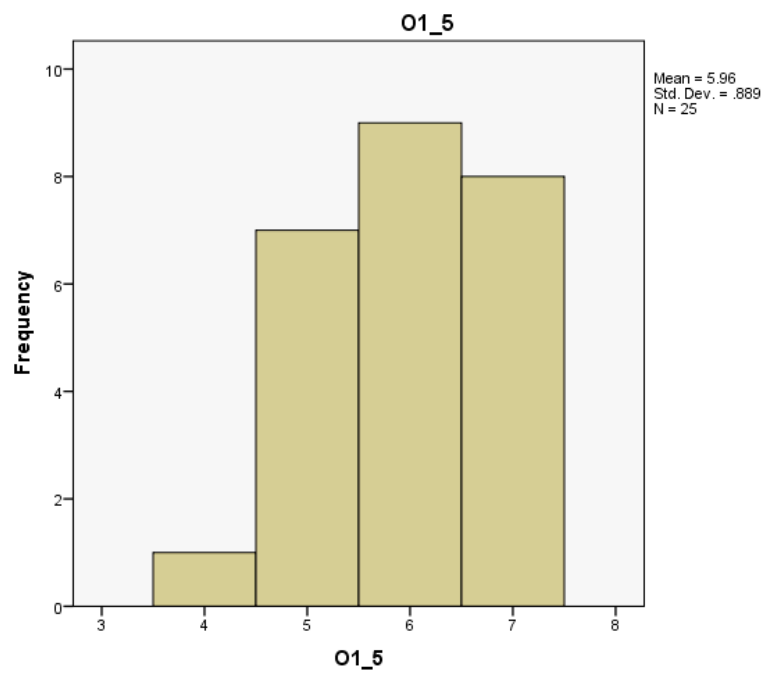
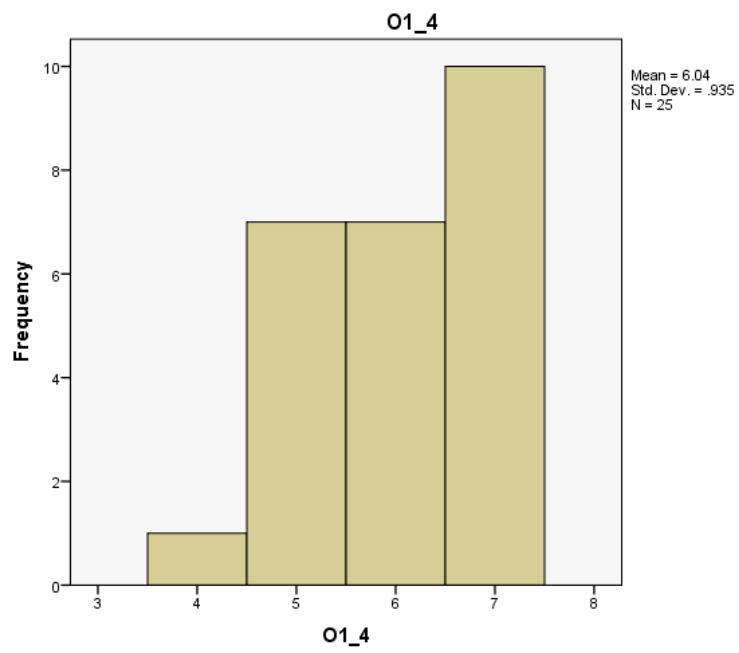


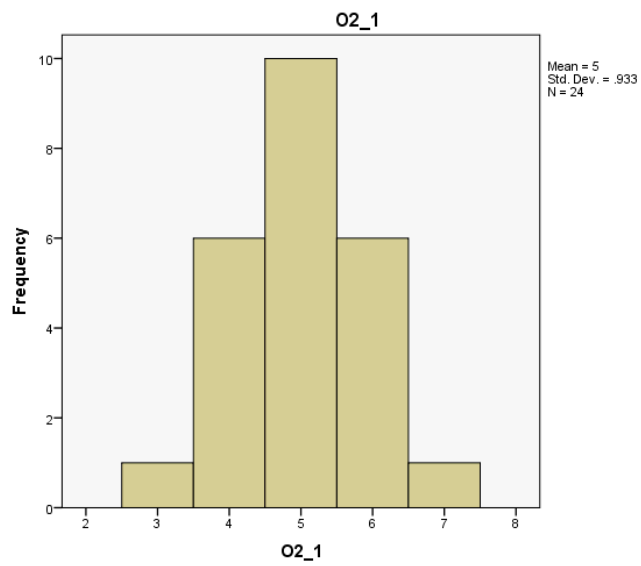
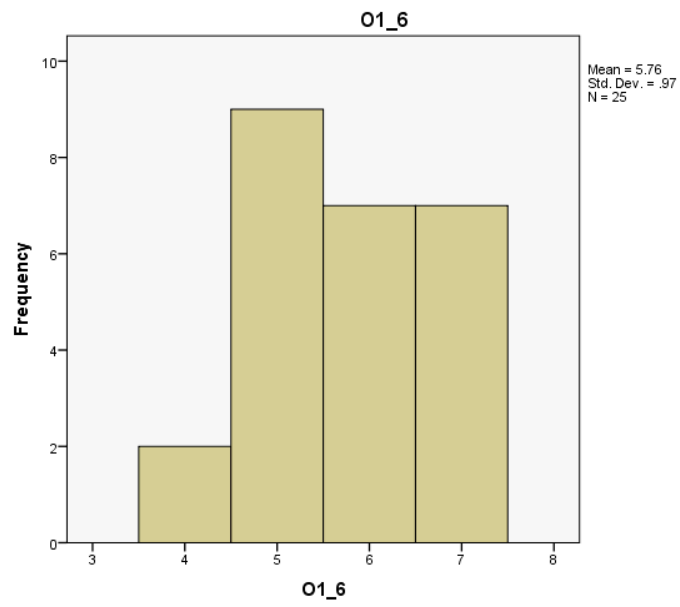


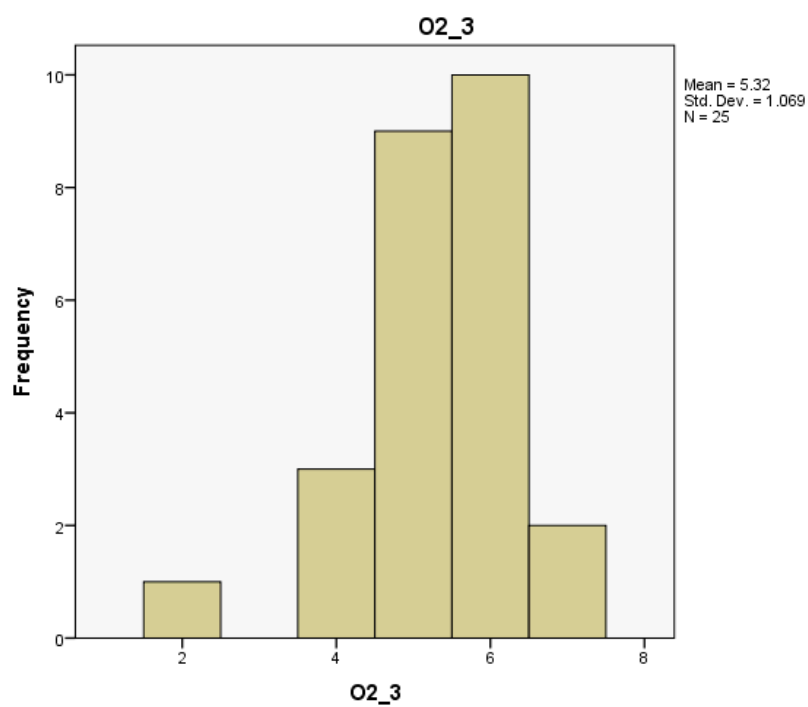
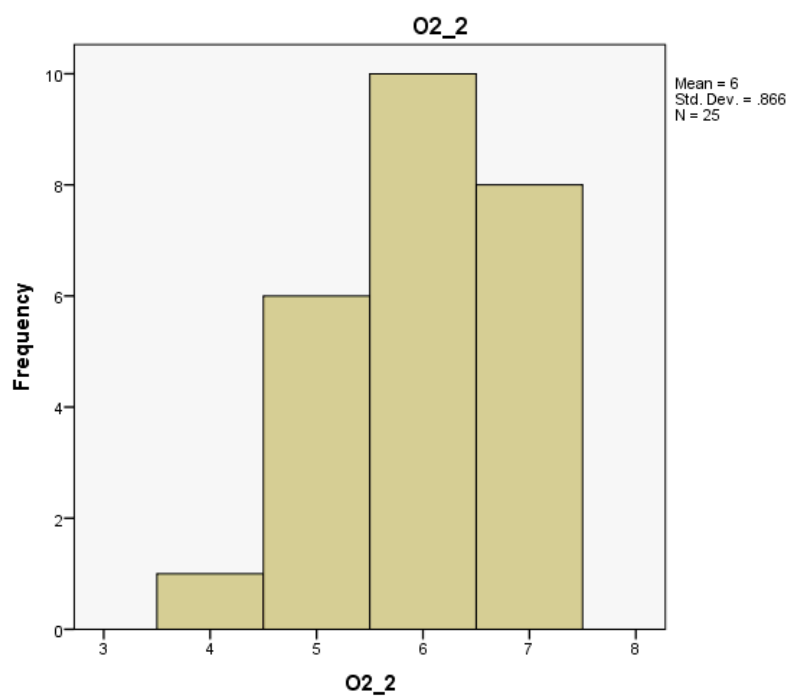


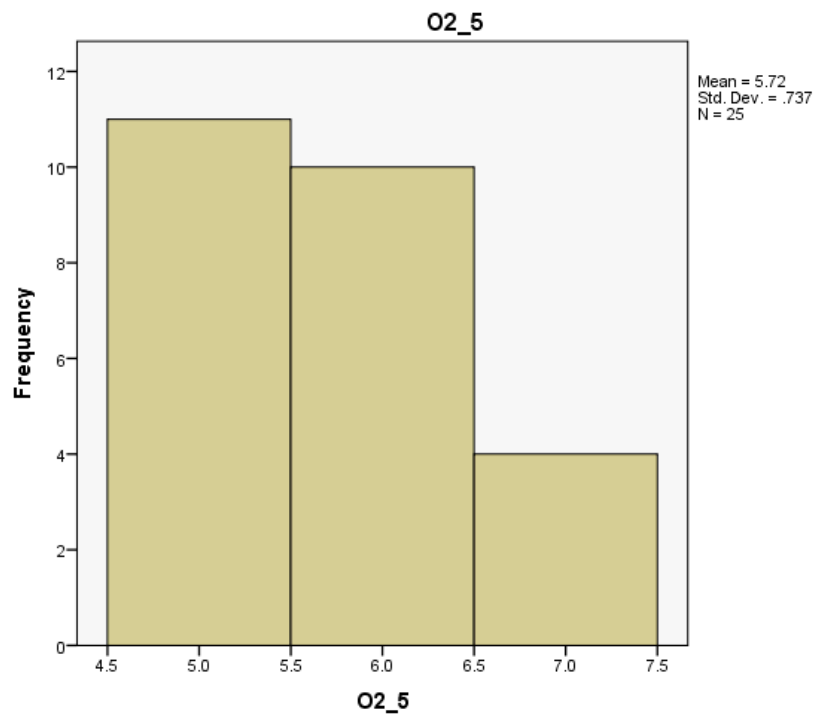
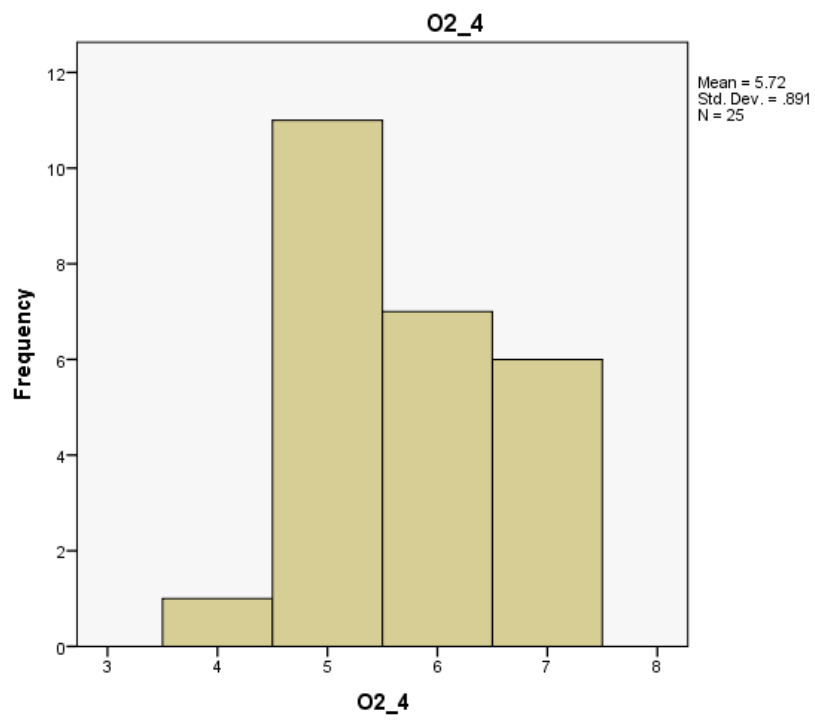


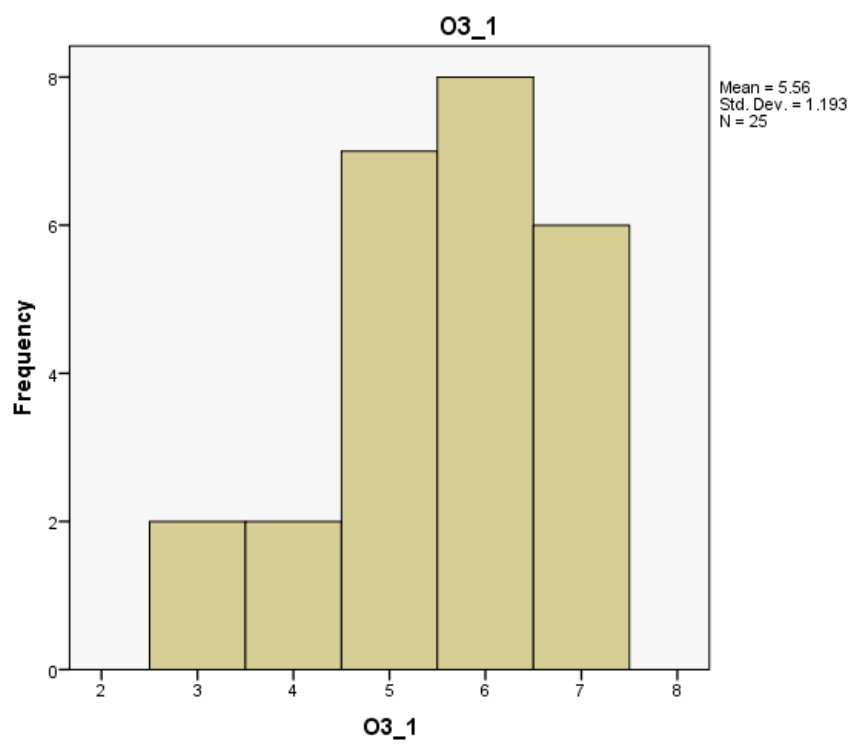
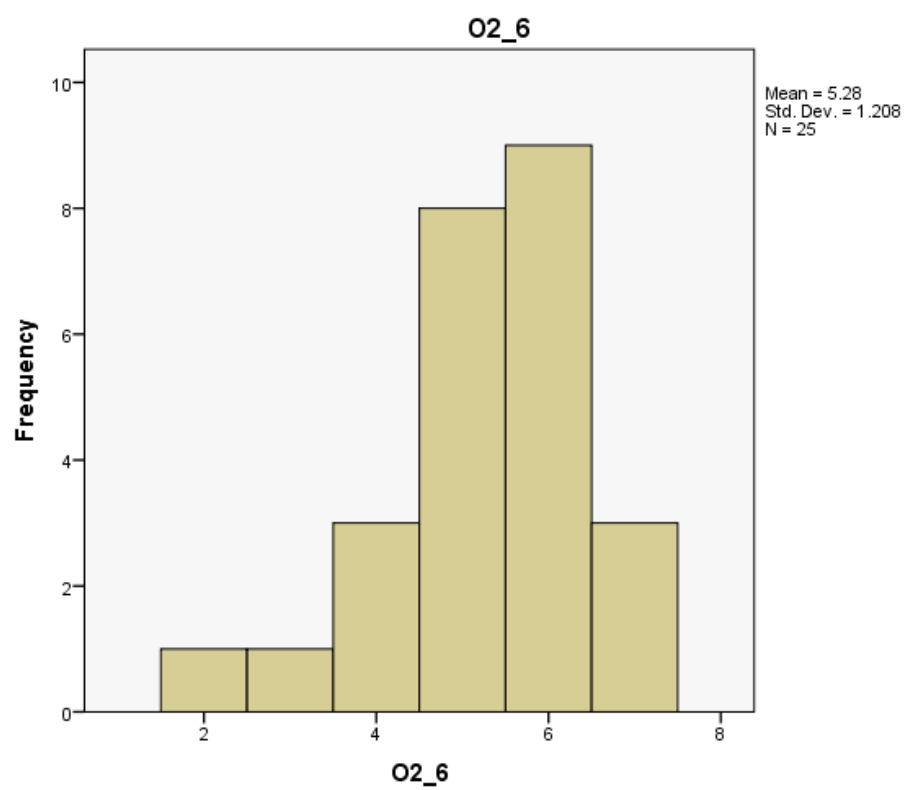


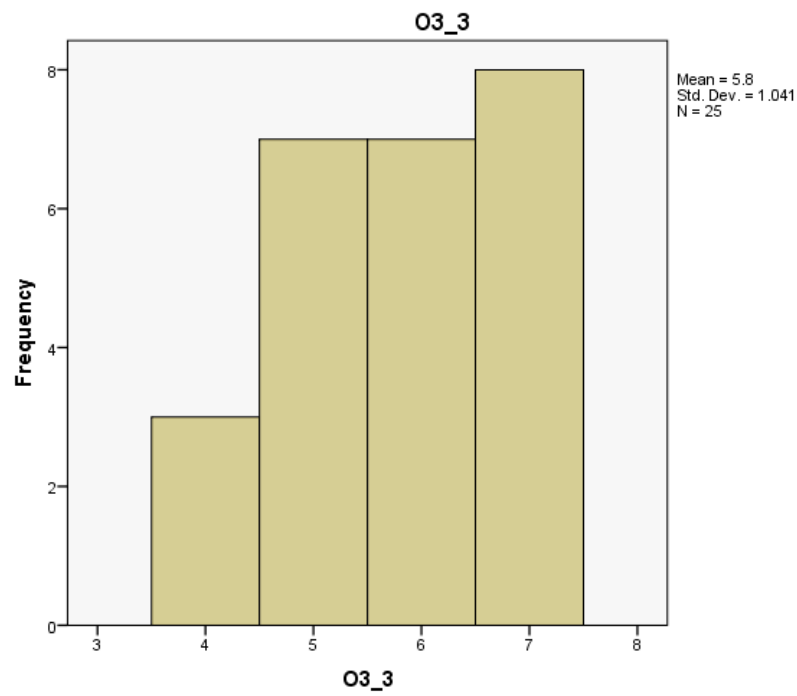
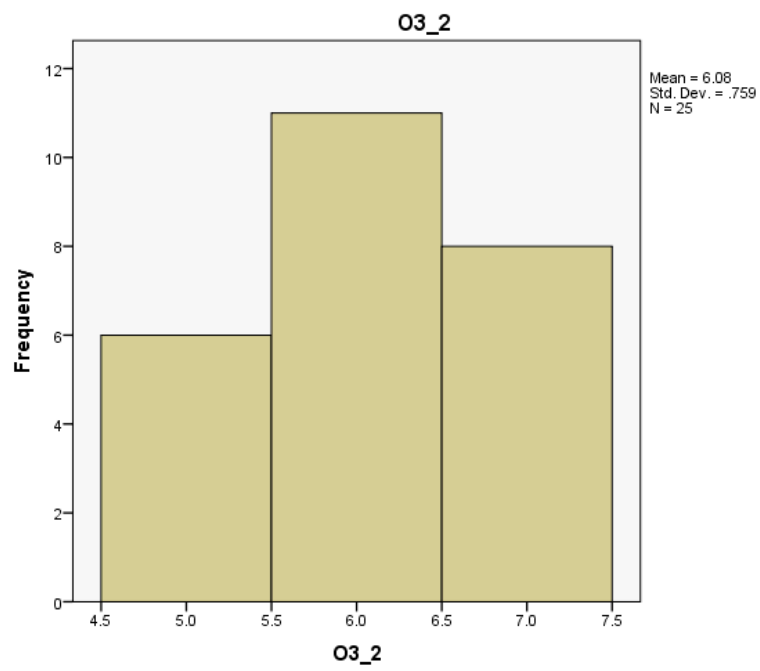


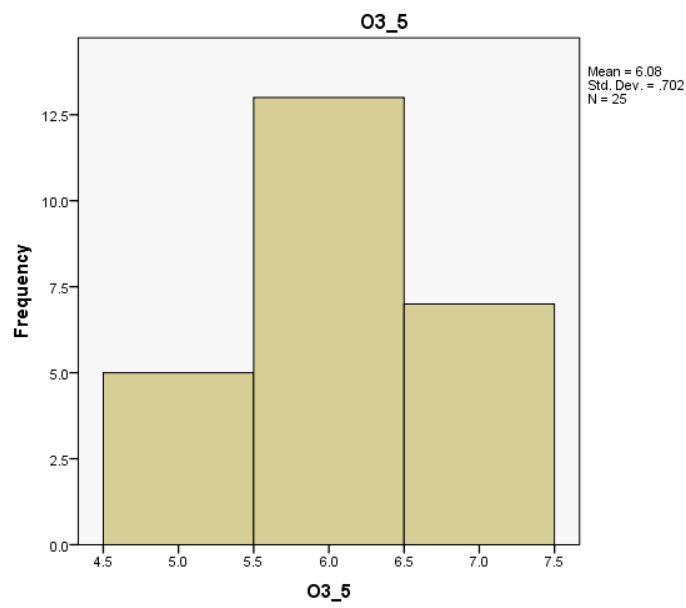
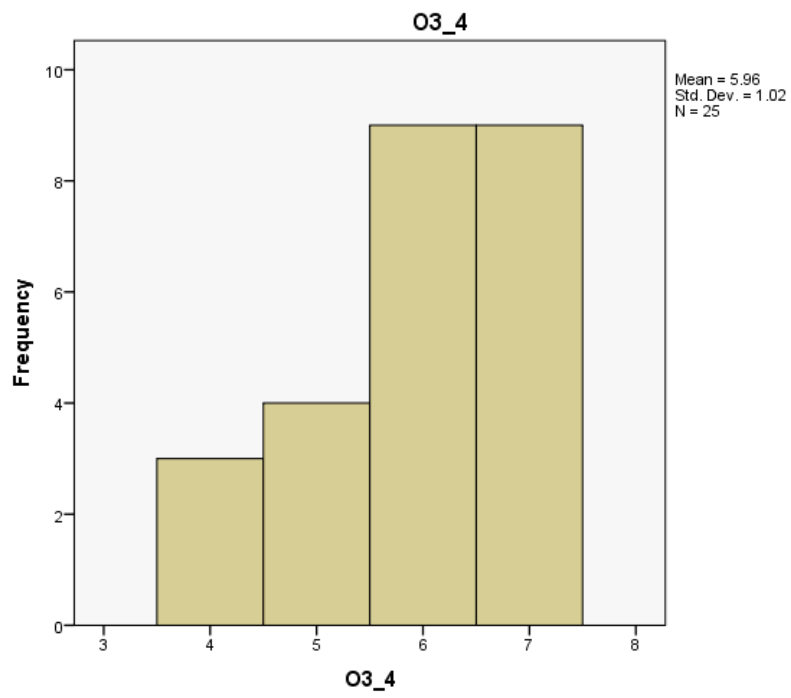


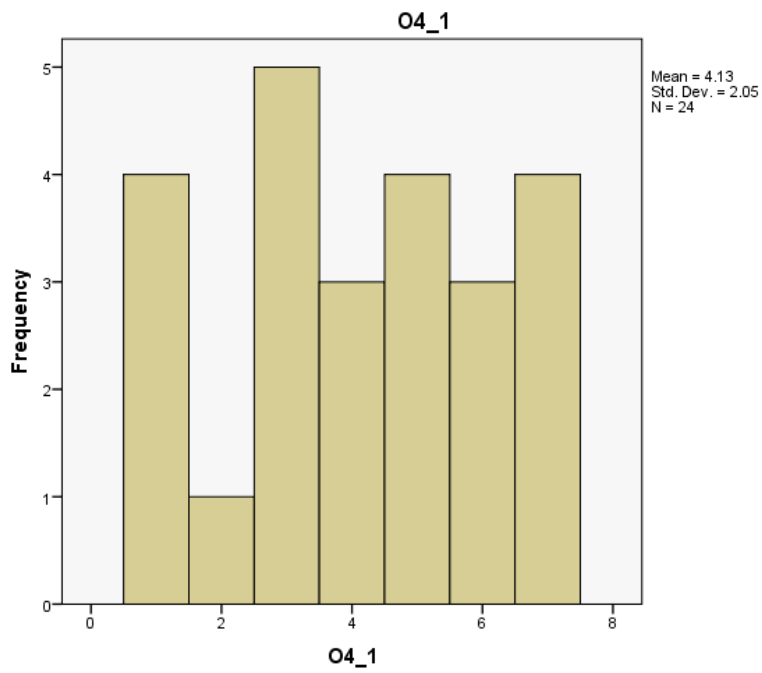
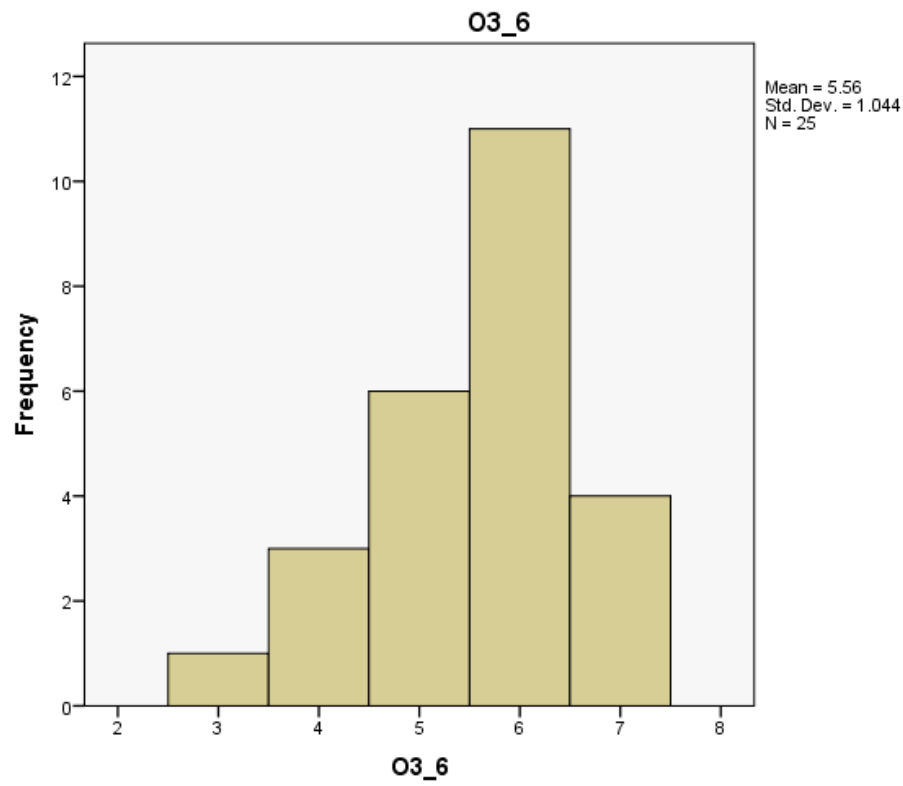


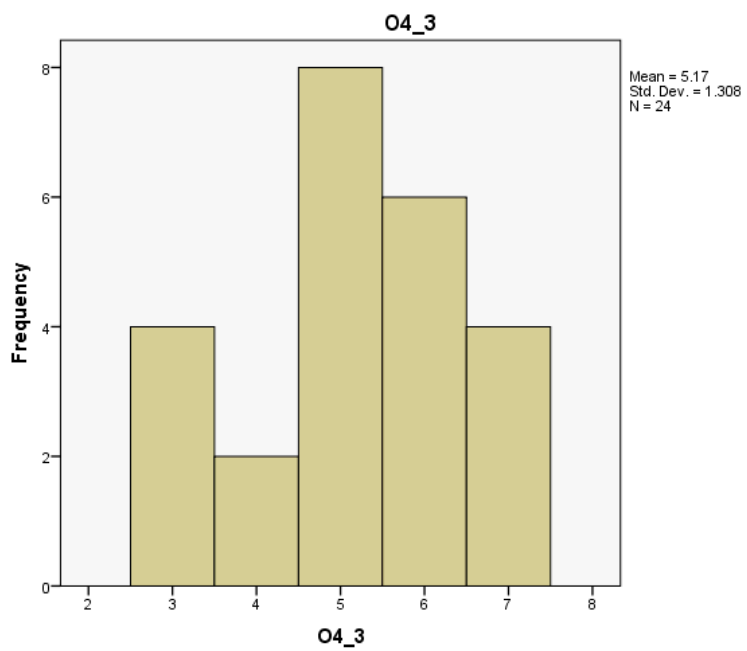
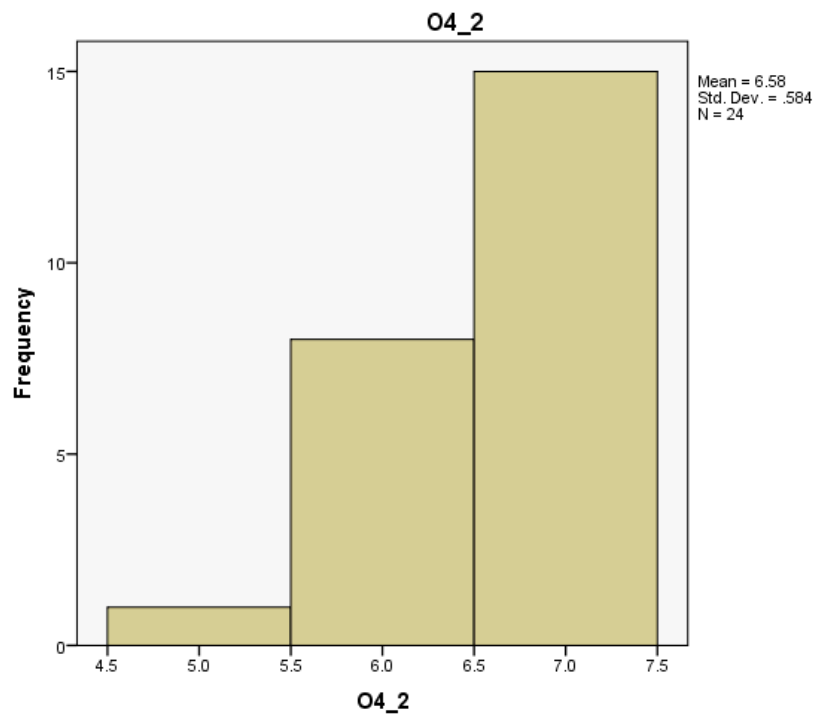


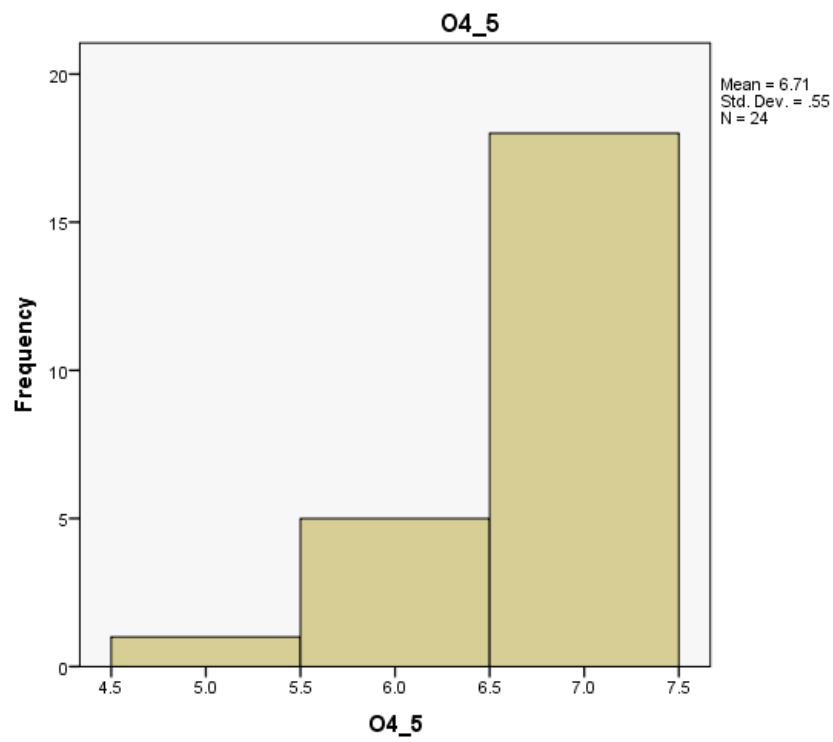
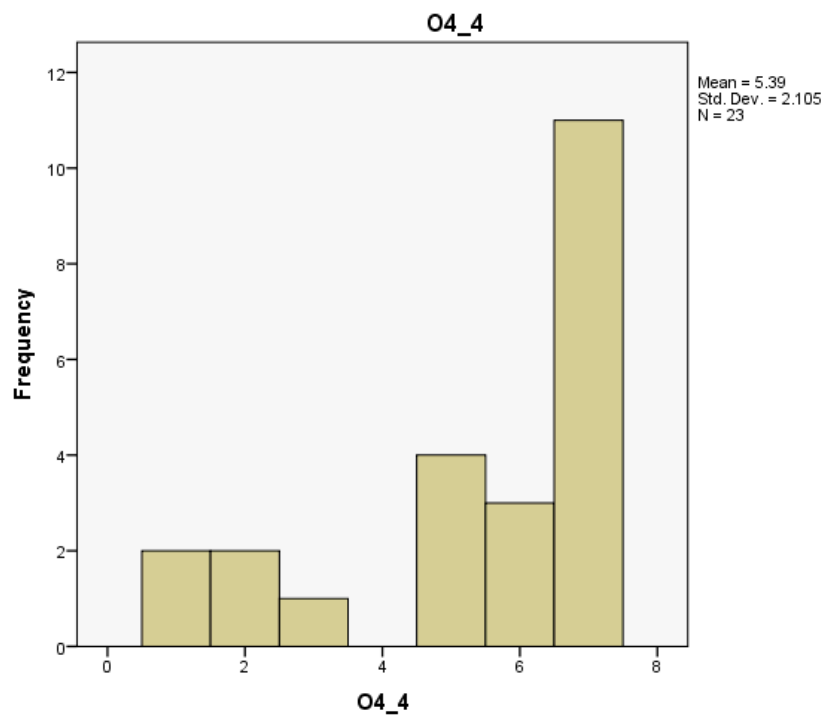


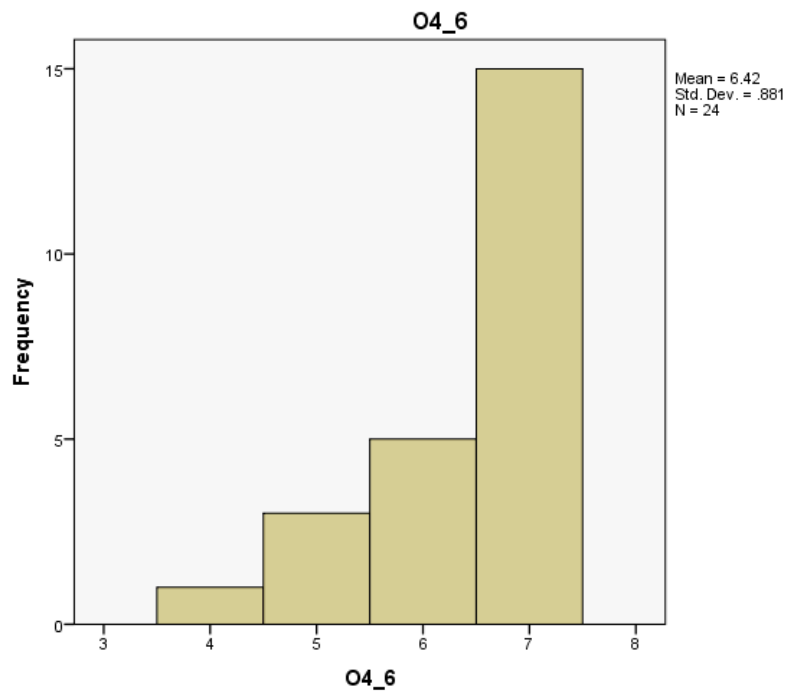


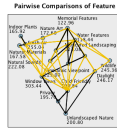








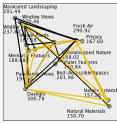




Sample1 - Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Child Friendly- Water Features	13.400	0.121	.854	.884	1.000
Child Friendly- Memorial Features	18.120	0.121	.579	.583	1.000
Child Friendly- Indoor Plants	61.080	0.121	1.950	.051	1.000
Child Friendly- Natural Materials	62.740	0.121	2.003	.045	1.000
Child Friendly- Nature Art	67.840	0.121	2.108	.039	1.000
Child Friendly- Privacy	-93.860	0.121	-2.961	.004	.446
Child Friendly- Unlandscaped Nature	-95.960	0.121	-3.064	.002	.262
Child Friendly- Natural Sounds	117.240	0.121	3.793	.000	.502
Child Friendly- Maintained Landscaping	-118.240	0.121	-3.775	.000	.516
Child Friendly- Panoramic Viewpoints	120.160	0.121	3.816	.000	.512
Child Friendly- Red Accessible Spaces	-127.920	0.121	-4.084	.000	.390
Child Friendly- Wildlife	-149.520	0.121	-4.488	.000	.291
Child Friendly- Daylight	141.327	0.145	4.466	.000	.291
Child Friendly- Fresh Air	159.200	0.131	4.796	.000	.266
Child Friendly- Window Views	158.600	0.121	4.741	.000	.266
Nature Features- Memorial Features	-4.520	0.121	-.344	.885	1.000
Nature Features- Indoor Plants	-47.480	0.121	-1.516	.128	1.000
Nature Features- Natural Materials	-49.140	0.121	-1.589	.117	1.000
Nature Features- Nature Art	-54.160	0.121	-1.752	.083	1.000
Nature Features- Privacy	-71.280	0.121	-2.462	.014	1.000
Nature Features- Unlandscaped Nature	-82.380	0.121	-2.638	.009	1.000
Nature Features- Natural Sounds	101.640	0.121	3.209	.001	.212
Nature Features- Maintained Landscaping	-104.640	0.121	-3.341	.001	.208
Nature Features- Panoramic Viewpoints	105.160	0.121	3.465	.001	.200
Nature Features- Red Accessible Spaces	-114.320	0.121	-3.650	.000	.201
Nature Features- Wildlife	-126.920	0.121	-4.052	.000	.204
Nature Features- Daylight	127.727	0.145	4.036	.000	.207
Nature Features- Fresh Air	138.600	0.121	4.361	.000	.202
Nature Features- Window Views	145.000	0.121	4.567	.000	.200
Memorial Features- Indoor Plants	-42.960	0.121	-1.572	.116	1.000
Memorial Features- Natural Materials	44.620	0.121	1.425	.154	1.000
Memorial Features- Nature Art	-49.720	0.121	-1.587	.112	1.000
Memorial Features- Privacy	-72.740	0.121	-2.322	.020	1.000
Memorial Features- Unlandscaped Nature	-77.840	0.121	-2.485	.013	1.000
Memorial Features- Natural Sounds	99.120	0.121	3.163	.002	.286
Memorial Features- Maintained Landscaping	-109.120	0.121	-3.187	.001	.287
Memorial Features- Panoramic Viewpoints	102.080	0.121	3.238	.001	.275
Memorial Features- Red Accessible Spaces	-109.800	0.121	-3.106	.001	.255
Memorial Features- Wildlife	-122.400	0.121	-3.808	.000	.251
Memorial Features- Daylight	125.207	0.145	4.089	.000	.252
Memorial Features- Fresh Air	-132.080	0.121	-4.217	.000	.246
Memorial Features- Window Views	-140.480	0.122	-4.762	.000	.246
Indoor Plants- Natural Materials	1.860	0.122	.055	.374	1.000
Indoor Plants- Nature Art	6.760	0.121	.216	.829	1.000
Indoor Plants- Privacy	-29.780	0.121	-.951	.342	1.000
Indoor Plants- Unlandscaped Nature	-34.880	0.121	-1.114	.265	1.000
Indoor Plants- Natural Sounds	58.160	0.121	1.793	.073	1.000
Indoor Plants- Maintained Landscaping	-57.160	0.121	-1.825	.068	1.000
Indoor Plants- Panoramic Viewpoints	59.680	0.121	1.886	.059	1.000
Indoor Plants- Red Accessible Spaces	-66.840	0.121	-2.114	.033	1.000
Indoor Plants- Wildlife	-79.440	0.121	-2.536	.011	1.000
Indoor Plants- Daylight	89.247	0.145	2.536	.011	1.000
Indoor Plants- Fresh Air	89.120	0.121	2.845	.004	.512
Indoor Plants- Window Views	157.520	0.121	4.951	.000	.061
Natural Materials- Nature Art	-5.100	0.121	-.363	.871	1.000
Natural Materials- Privacy	-28.120	0.121	-.886	.369	1.000
Natural Materials- Unlandscaped Nature	-33.220	0.121	-1.061	.289	1.000
Natural Materials- Natural Sounds	54.000	0.121	1.740	.082	1.000
Natural Materials- Maintained Landscaping	-55.000	0.121	-1.772	.076	1.000
Natural Materials- Panoramic Viewpoints	57.420	0.121	1.833	.067	1.000
Natural Materials- Red Accessible Spaces	-65.180	0.121	-2.081	.037	1.000
Natural Materials- Wildlife	-77.780	0.121	-2.463	.013	1.000
Natural Materials- Daylight	78.587	0.145	2.463	.013	1.000
Natural Materials- Fresh Air	-87.460	0.121	-2.752	.005	.629
Natural Materials- Window Views	-135.860	0.121	-4.338	.000	.066
Nature Art- Privacy	-23.620	0.121	-.755	.462	1.000
Nature Art- Unlandscaped Nature	-28.120	0.121	-.886	.369	1.000
Nature Art- Natural Sounds	49.400	0.121	1.577	.115	1.000
Nature Art- Maintained Landscaping	-58.400	0.121	-1.889	.058	1.000
Nature Art- Panoramic Viewpoints	52.320	0.121	1.679	.091	1.000
Nature Art- Red Accessible Spaces	-68.080	0.121	-1.938	.055	1.000
Nature Art- Wildlife	-72.680	0.121	-2.521	.020	1.000
Nature Art- Daylight	73.487	0.145	2.522	.020	1.000
Nature Art- Fresh Air	82.380	0.121	2.889	.009	1.000
Nature Art- Window Views	159.760	0.122	5.175	.000	.206
Privacy- Unlandscaped Nature	-5.100	0.121	-.363	.871	1.000
Privacy- Natural Sounds	26.380	0.121	.862	.400	1.000
Privacy- Maintained Landscaping	-27.380	0.121	-.876	.381	1.000
Privacy- Panoramic Viewpoints	29.100	0.121	.903	.355	1.000
Privacy- Red Accessible Spaces	-37.060	0.121	-1.383	.157	1.000
Privacy- Wildlife	49.660	0.121	1.586	.113	1.000
Privacy- Daylight	58.467	0.145	1.586	.113	1.000
Privacy- Fresh Air	58.340	0.121	1.895	.058	1.000
Privacy- Window Views	107.740	0.121	3.440	.001	.079
Unlandscaped Nature- Natural Sounds	21.080	0.121	.679	.497	1.000
Unlandscaped Nature- Maintained Landscaping	22.080	0.121	.711	.477	1.000
Unlandscaped Nature- Panoramic Viewpoints	24.200	0.121	.773	.440	1.000
Unlandscaped Nature- Red Accessible Spaces	31.960	0.121	1.020	.309	1.000
Unlandscaped Nature- Wildlife	44.960	0.121	1.423	.155	1.000
Unlandscaped Nature- Daylight	45.367	0.145	1.434	.152	1.000
Unlandscaped Nature- Fresh Air	54.240	0.121	1.732	.083	1.000
Unlandscaped Nature- Window Views	102.640	0.121	3.277	.001	.126
Natural Sounds- Maintained Landscaping	-1.000	0.121	-.032	.875	1.000
Natural Sounds- Panoramic Viewpoints	-2.920	0.121	-.083	.826	1.000
Natural Sounds- Red Accessible Spaces	-10.680	0.121	-.341	.733	1.000
Natural Sounds- Wildlife	-23.280	0.121	-.743	.457	1.000
Natural Sounds- Daylight	-24.087	0.145	-.761	.447	1.000
Natural Sounds- Fresh Air	-32.960	0.121	-1.052	.293	1.000
Natural Sounds- Window Views	-41.360	0.121	-1.596	.059	1.000
Maintained Landscaping- Panoramic Viewpoints	1.920	0.121	.061	.951	1.000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Insignificant significances (p-value factor) are dropped. The significance level is .05.

Pairwise Comparisons of Feature

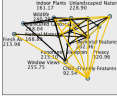


Each node shows the sample average rank of feature.

Sample 1 Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Child-Friendly Features-Window Views	13.257	15.115	.421	.874	1.000
Child-Friendly Features-Natural Materials	23.117	15.115	.714	.463	1.000
Child-Friendly Features-Nature Artwork	29.627	15.115	.862	.346	1.000
Child-Friendly Features-Privacy	-40.017	15.115	-2.679	.004	1.000
Child-Friendly Features-Undeveloped Nature	-40.437	15.115	-2.683	.004	1.000
Child-Friendly Features-Indoor Plants	59.997	15.115	3.964	.007	1.000
Child-Friendly Features-Memorial Features	61.097	15.115	4.019	.003	1.000
Child-Friendly Features-Panoramic Views	67.297	15.115	4.415	.001	1.000
Child-Friendly Features-Monitored Landscaping	-75.857	15.115	-5.014	.001	1.000
Child-Friendly Features-Bed-Accessible Spaces	-74.197	15.115	-4.903	.001	1.000
Child-Friendly Features-Natural Sounds	83.197	15.115	5.498	.000	.001
Child-Friendly Features-Wildlife	-110.017	15.115	-7.276	.000	.001
Child-Friendly Features-Window Views	142.877	15.115	9.454	.000	.001
Child-Friendly Features-Fresh Air	160.137	15.115	10.593	.000	.001
Child-Friendly Features-Daylight	175.197	15.115	11.586	.000	.001
Nature Artwork-Natural Materials	-9.860	15.192	-.314	.752	1.000
Nature Artwork-Nature Artwork	-18.420	15.192	-.528	.599	1.000
Nature Artwork-Privacy	-28.760	15.192	-.818	.401	1.000
Nature Artwork-Undeveloped Nature	-27.180	15.192	-.871	.384	1.000
Nature Artwork-Indoor Plants	-48.740	15.192	-1.498	.134	1.000
Nature Artwork-Memorial Features	-47.840	15.192	-1.514	.125	1.000
Nature Artwork-Panoramic Views	-54.040	15.192	-1.713	.088	1.000
Nature Artwork-Monitored Landscaping	-60.600	15.192	-1.943	.052	1.000
Nature Artwork-Bed-Accessible Spaces	-61.140	15.192	-1.980	.050	1.000
Nature Artwork-Natural Sounds	69.840	15.192	2.242	.025	1.000
Nature Artwork-Wildlife	-96.760	15.192	-3.101	.002	.233
Nature Artwork-Window Views	-129.620	15.192	-4.154	.000	.001
Nature Artwork-Fresh Air	-150.040	15.192	-4.612	.000	.001
Nature Artwork-Daylight	-155.940	15.192	-5.128	.000	.001
Natural Materials-Nature Artwork	-4.560	15.192	-.150	.883	1.000
Natural Materials-Privacy	-16.900	15.192	-.542	.588	1.000
Natural Materials-Nature Artwork	-17.220	15.192	-.553	.579	1.000
Natural Materials-Indoor Plants	-36.840	15.192	-1.182	.237	1.000
Natural Materials-Memorial Features	-37.980	15.192	-1.218	.223	1.000
Natural Materials-Panoramic Views	-44.180	15.192	-1.428	.157	1.000
Natural Materials-Monitored Landscaping	-50.740	15.192	-1.627	.104	1.000
Natural Materials-Bed-Accessible Spaces	-51.280	15.192	-1.664	.100	1.000
Natural Materials-Natural Sounds	60.680	15.192	1.824	.074	1.000
Natural Materials-Wildlife	-86.800	15.192	-2.744	.005	.445
Natural Materials-Window Views	-119.760	15.192	-3.833	.000	.001
Natural Materials-Fresh Air	-140.220	15.192	-4.495	.000	.001
Natural Materials-Daylight	-150.080	15.192	-4.812	.000	.001
Nature Artwork-Privacy	-10.340	15.192	-.331	.740	1.000
Nature Artwork-Undeveloped Nature	-10.760	15.192	-.345	.730	1.000
Nature Artwork-Indoor Plants	-30.320	15.192	-.972	.331	1.000
Nature Artwork-Memorial Features	31.420	15.192	1.007	.314	1.000
Nature Artwork-Panoramic Views	37.620	15.192	1.206	.228	1.000
Nature Artwork-Monitored Landscaping	-44.180	15.192	-1.424	.157	1.000
Nature Artwork-Bed-Accessible Spaces	-44.720	15.192	-1.424	.152	1.000
Nature Artwork-Natural Sounds	53.520	15.192	1.714	.086	1.000
Nature Artwork-Wildlife	-80.340	15.192	-2.576	.010	1.000
Nature Artwork-Window Views	111.200	15.192	3.629	.000	.001
Nature Artwork-Fresh Air	131.660	15.192	4.245	.000	.001
Nature Artwork-Daylight	143.520	15.192	4.601	.000	.001
Privacy-Undeveloped Nature	-.420	15.192	-.013	.989	1.000
Privacy-Indoor Plants	19.980	15.192	.641	.522	1.000
Privacy-Memorial Features	21.080	15.192	.676	.499	1.000
Privacy-Panoramic Views	27.280	15.192	.875	.382	1.000
Privacy-Monitored Landscaping	-33.840	15.192	-1.085	.278	1.000
Privacy-Bed-Accessible Spaces	-34.580	15.192	-1.182	.270	1.000
Privacy-Natural Sounds	43.180	15.192	1.384	.166	1.000
Privacy-Wildlife	70.000	15.192	2.244	.025	1.000
Privacy-Window Views	102.860	15.192	3.298	.001	.117
Privacy-Fresh Air	123.320	15.192	3.914	.000	.001
Privacy-Daylight	133.180	15.192	4.270	.000	.001
Undeveloped Nature-Indoor Plants	19.500	15.192	.627	.531	1.000
Undeveloped Nature-Memorial Features	20.600	15.192	.662	.508	1.000
Undeveloped Nature-Panoramic Views	26.800	15.192	.861	.389	1.000
Undeveloped Nature-Monitored Landscaping	33.420	15.192	1.071	.284	1.000
Undeveloped Nature-Bed-Accessible Spaces	33.960	15.192	1.089	.276	1.000
Undeveloped Nature-Natural Sounds	42.760	15.192	1.571	.170	1.000
Undeveloped Nature-Wildlife	69.580	15.192	2.251	.026	1.000
Undeveloped Nature-Window Views	102.440	15.192	3.284	.001	.123
Undeveloped Nature-Fresh Air	122.900	15.192	3.900	.000	.001
Undeveloped Nature-Daylight	132.760	15.192	4.256	.000	.001
Indoor Plants-Memorial Features	1.100	15.192	.033	.972	1.000
Indoor Plants-Panoramic Views	7.300	15.192	.234	.813	1.000
Indoor Plants-Monitored Landscaping	-13.860	15.192	-.444	.657	1.000
Indoor Plants-Bed-Accessible Spaces	-14.400	15.192	-.462	.640	1.000
Indoor Plants-Natural Sounds	23.000	15.192	.744	.457	1.000
Indoor Plants-Wildlife	-50.020	15.192	-1.604	.109	1.000
Indoor Plants-Window Views	82.840	15.192	2.657	.008	.944
Indoor Plants-Fresh Air	103.340	15.192	3.333	.001	.115
Indoor Plants-Daylight	111.200	15.192	3.629	.000	.001
Memorial Features-Panoramic Views	8.200	15.192	.289	.892	1.000
Memorial Features-Monitored Landscaping	-12.760	15.192	-.408	.682	1.000
Memorial Features-Bed-Accessible Spaces	-13.300	15.192	-.428	.670	1.000
Memorial Features-Natural Sounds	22.100	15.192	.719	.479	1.000
Memorial Features-Wildlife	-48.920	15.192	-1.588	.117	1.000
Memorial Features-Window Views	-81.780	15.192	-2.622	.009	1.000
Memorial Features-Fresh Air	-102.240	15.192	-3.278	.001	.128
Memorial Features-Daylight	-112.100	15.192	-3.594	.000	.001
Panoramic Views-Monitored Landscaping	-4.560	15.192	-.150	.883	1.000
Panoramic Views-Bed-Accessible Spaces	-7.100	15.192	-.228	.820	1.000
Panoramic Views-Natural Sounds	15.900	15.192	.510	.610	1.000

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Pairwise Comparisons of Feature



Each node shows the sample average rank of feature

Sample 1 - Sample2	Sample Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Child - Friendly Features - Privacy	-18.417	29.843	-0.952	.341	1.000
Child - Friendly Features - Water Features	47.022	29.843	1.576	.115	1.000
Child - Friendly Features - Natural Sounds	65.188	29.843	2.184	.029	1.000
Child - Friendly Features - Indoor Plants	68.625	29.843	2.300	.021	1.000
Child - Friendly Features - Natural Materials	75.983	30.106	2.523	.015	1.000
Child - Friendly Features - Bed-Accessible Spaces	76.950	30.106	2.551	.013	1.000
Child - Friendly Features - Bed-Accessible Spaces	-85.121	30.106	-2.822	.005	.373
Child - Friendly Features - Memorial Features	119.417	29.843	3.700	.000	.006
Child - Friendly Features - Fresh Air	121.637	30.106	4.026	.000	.001
Child - Friendly Features - Panoramic Viewpoint	122.941	29.843	4.107	.000	.001
Child - Friendly Features - Unlandscaped Nature	-136.354	29.843	-4.569	.000	.001
Child - Friendly Features - Wildlife	-148.229	29.843	-4.966	.000	.000
Child - Friendly Features - Daylight	154.000	29.843	5.160	.000	.000
Child - Friendly Features - Window Views	163.209	29.843	5.469	.000	.000
Child - Friendly Features - Maintained Landscaping	-165.500	29.843	-5.546	.000	.000
Privacy - Water Features	18.604	29.843	.623	.533	1.000
Privacy - Natural Sounds	36.771	29.843	1.232	.218	1.000
Privacy - Indoor Plants	40.208	29.843	1.347	.178	1.000
Privacy - Nature Artwork	44.976	30.106	1.491	.136	1.000
Privacy - Natural Materials	47.933	30.106	1.589	.112	1.000
Privacy - Bed-Accessible Spaces	-56.718	30.106	-1.880	.060	1.000
Privacy - Memorial Features	82.000	29.843	2.748	.006	.720
Privacy - Fresh Air	93.020	30.106	3.084	.002	.245
Privacy - Panoramic Viewpoint	94.146	29.843	3.155	.002	.193
Privacy - Unlandscaped Nature	-107.938	29.843	-3.617	.000	.036
Privacy - Wildlife	119.833	29.843	4.015	.000	.001
Privacy - Daylight	125.543	29.843	4.208	.000	.001
Privacy - Window Views	134.792	29.843	4.517	.000	.001
Privacy - Maintained Landscaping	-137.083	29.843	-4.593	.000	.001
Water Features - Natural Sounds	18.167	29.843	.609	.543	1.000
Water Features - Indoor Plants	-11.609	29.843	-.774	.469	1.000
Water Features - Nature	-36.372	30.106	-1.204	.262	1.000
Water Features - Natural Materials	-29.528	30.106	-.982	.331	1.000
Water Features - Bed-Accessible Spaces	-34.111	30.106	-1.263	.206	1.000
Water Features - Memorial Features	-69.398	29.843	-2.324	.024	1.000
Water Features - Fresh Air	74.416	30.106	2.470	.014	1.000
Water Features - Panoramic Viewpoint	75.942	29.843	2.531	.011	1.000
Water Features - Unlandscaped Nature	-89.831	29.843	-3.009	.003	.181
Water Features - Wildlife	-101.229	29.843	-3.382	.001	.085
Water Features - Daylight	-106.979	29.843	-3.585	.000	.048
Water Features - Window Views	-116.188	29.843	-3.893	.000	.011
Water Features - Maintained Landscaping	-118.479	29.843	-3.970	.000	.008
Natural Sounds - Indoor Plants	-3.438	29.843	-.115	.908	1.000
Natural Sounds - Nature	-8.208	30.106	-.272	.788	1.000
Natural Sounds - Natural Materials	-11.162	30.106	-.370	.711	1.000
Natural Sounds - Bed-Accessible Spaces	-19.945	30.106	-.661	.509	1.000
Natural Sounds - Memorial Features	-45.229	29.843	-1.516	.130	1.000
Natural Sounds - Fresh Air	-56.249	30.106	-1.865	.062	1.000
Natural Sounds - Panoramic Viewpoint	-57.375	29.843	-1.923	.055	1.000
Natural Sounds - Unlandscaped Nature	-71.167	29.843	-2.385	.017	1.000
Natural Sounds - Wildlife	-83.061	29.843	-2.783	.005	.646
Natural Sounds - Daylight	-88.812	29.843	-2.976	.003	.351
Natural Sounds - Window Views	-98.021	29.843	-3.285	.001	.123
Natural Sounds - Maintained Landscaping	-100.312	29.843	-3.361	.001	.093
Indoor Plants - Nature Artwork	4.768	30.106	.158	.874	1.000
Indoor Plants - Natural Materials	7.725	30.106	.256	.798	1.000
Indoor Plants - Bed-Accessible Spaces	-16.507	30.106	-.547	.584	1.000
Indoor Plants - Memorial Features	41.792	29.843	1.400	.161	1.000
Indoor Plants - Fresh Air	52.812	30.106	1.751	.080	1.000
Indoor Plants - Panoramic Viewpoint	53.938	29.843	1.807	.071	1.000
Indoor Plants - Unlandscaped Nature	-67.728	29.843	-2.269	.023	1.000
Indoor Plants - Wildlife	-79.613	29.843	-2.666	.008	.815
Indoor Plants - Daylight	85.373	29.843	2.861	.004	.507
Indoor Plants - Window Views	94.583	29.843	3.169	.002	.181
Indoor Plants - Maintained Landscaping	-99.879	29.843	-3.336	.001	.140
Nature Artwork - Natural Materials	2.997	30.485	.097	.924	1.000
Nature Artwork - Bed-Accessible Spaces	-11.739	30.485	-.385	.700	1.000
Nature Artwork - Memorial Features	37.624	30.106	1.227	.220	1.000
Nature Artwork - Fresh Air	48.043	30.485	1.576	.115	1.000
Nature Artwork - Panoramic Viewpoint	49.169	30.106	1.630	.103	1.000
Nature Artwork - Unlandscaped Nature	-62.961	30.106	-2.097	.037	1.000
Nature Artwork - Wildlife	-74.857	30.106	-2.481	.013	1.000
Nature Artwork - Daylight	80.607	30.106	2.672	.008	.905
Nature Artwork - Window Views	89.813	30.106	2.977	.003	.349
Nature Artwork - Maintained Landscaping	-92.107	30.106	-3.053	.002	.272
Natural Materials - Bed-Accessible Spaces	-4.781	30.485	-.158	.773	1.000
Natural Materials - Memorial Features	-34.067	30.106	-1.129	.259	1.000
Natural Materials - Fresh Air	-45.087	30.485	-1.479	.139	1.000
Natural Materials - Panoramic Viewpoint	46.213	30.106	1.532	.126	1.000
Natural Materials - Unlandscaped Nature	-60.005	30.106	-1.989	.047	1.000
Natural Materials - Wildlife	-71.900	30.106	-2.383	.017	1.000
Natural Materials - Daylight	-77.650	30.106	-2.574	.010	1.000
Natural Materials - Window Views	-86.858	30.106	-2.879	.004	.418
Natural Materials - Maintained Landscaping	-89.150	30.106	-2.955	.003	.375
Bed-Accessible Spaces - Memorial Features	25.284	30.106	.838	.402	1.000
Bed-Accessible Spaces - Fresh Air	36.304	30.485	1.191	.234	1.000
Bed-Accessible Spaces - Panoramic Viewpoint	37.430	30.106	1.242	.215	1.000
Bed-Accessible Spaces - Unlandscaped Nature	-51.222	30.106	-1.698	.090	1.000
Bed-Accessible Spaces - Wildlife	63.118	30.106	2.092	.036	1.000
Bed-Accessible Spaces - Daylight	68.868	30.106	2.283	.022	1.000
Bed-Accessible Spaces - Window Views	78.076	30.106	2.588	.010	1.000
Bed-Accessible Spaces - Maintained Landscaping	-80.368	30.106	-2.664	.009	.808
Memorial Features - Fresh Air	-13.020	30.106	-.431	.715	1.000
Memorial Features - Panoramic Viewpoint	12.146	29.843	.407	.684	1.000
Memorial Features - Unlandscaped Nature	-25.939	29.843	-.869	.385	1.000
Memorial Features - Wildlife	-37.831	29.843	-1.264	.205	1.000
Memorial Features - Daylight	-43.583	29.843	-1.460	.144	1.000
Memorial Features - Window Views	-62.792	29.843	-2.109	.037	1.000
Memorial Features - Maintained Landscaping	-65.083	29.843	-2.186	.035	1.000
Fresh Air - Panoramic Viewpoint	1.128	30.106	.037	.979	1.000

Each table tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significance (2-sided tests) are displayed. The significance level is .05. Cells with an exact test have been selected by the software procedure for multiple tests.

Pairwise Comparisons of UserGroup

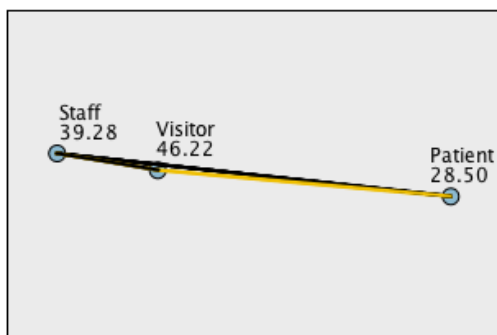


Each node shows the sample average rank of UserGroup.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Patient-Staff	-3.613	5.868	-.616	.538	1.000
Patient-Visitor	-15.120	5.808	-2.603	.009	.028
Staff-Visitor	-11.507	5.868	-1.961	.050	.150

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Pairwise Comparisons of UserGroup



Each node shows the sample average rank of UserGroup.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Patient-Staff	-10.780	5.980	-1.803	.071	.214
Patient-Visitor	-17.720	5.980	-2.963	.003	.009
Staff-Visitor	-6.940	5.980	-1.160	.246	.738

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
 Asymptotic significances (2-sided tests) are displayed. The significance level is .05.
 Significance values have been adjusted by the Bonferroni correction for multiple tests.